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LIST OF SESSIONAL PAPERS

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(This volume is bound in three parts.)

1. Report of the Auditor General for the year ended 31st March, 1916, Volume 1, Parts a b and A to K; Volume II, Parts L to U; Volume III, Parts V to Z; Volume IV, Part ZZ. Presented by Sir George Foster April 19, 1917.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 2.

2. The Public Accounts of Canada, for the fiscal year ended March 31, 1916. Presented by Sir Thomas White, February 1, 1917...*Printed for distribution and sessional papers.*

3. Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1918, and in accordance with the provisions of "The British North America Act, 1867," the Governor General recommends these Estimates to the House of Commons. Presented by Sir Thomas White, January 31, 1917.
Printed for distribution and sessional papers.

4. Supplementary Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1917, and, in accordance with the provisions of "The British North America Act, 1867," the Governor General recommends these Estimates to the House of Commons. Presented by Sir Thomas White, February 5, 1917.
Printed for distribution and sessional papers.

5. Supplementary Estimates of sums required for the service of the Dominion for the year ending on the 31st March, 1918. Presented by Sir Thomas White, August 17, 1917.
Printed for distribution and sessional papers.

6. List of Shareholders in the Chartered Banks of the Dominion of Canada as on December 31, 1915. Presented by Sir Thomas White, January 25, 1917.. .. .. ..*Not printed.*

7. Report on certified cheques, drafts or bills of exchange, dividends remaining unpaid and unclaimed balances in Chartered Banks of the Dominion of Canada, for five years and upwards prior to December 31, 1915. Presented by Sir Thomas White, January 25, 1917.. .. .. .

CONTENTS OF VOLUME 4.

10. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1916. Part I.—Canadian Trade (Imports in and Exports from Canada). Presented by Sir George Foster, April 19, 1917.. ..*Printed for distribution and sessional papers.*

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10*a*. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1916:—Part II.—Canadian Trade with France, Germany, the United Kingdom and the United States. Presented by Sir George Foster, January 25, 1917.
Printed for distribution and sessional papers.

10*b*. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1916.—Part III.—Canadian Trade with British and Foreign Countries (except France, Germany, United Kingdom and United States). Presented by Sir George Foster, April 19, 1917... .. ..*Printed for distribution and sessional papers.*

10*c*. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1916 (Part IV, Miscellaneous Information). Presented by Sir George Foster, June 4, 1917.. .. ..*Printed for distribution and sessional papers.*

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10*d*. Report of the Department of Trade and Commerce, Part V—Grain Statistics, compiled by the Inspection Branch of the Department, Ottawa, for the fiscal year ended March 31, 1916, the crop year ended August 31, 1916, and the season of navigation ended December 14, 1916; and Report of the Board of Grain Commissioners. Presented by Sir George Foster, June 5, 1917.. .. *Printed for distribution and sessional papers.*

10*e*. Report of the Department of Trade and Commerce, for the fiscal year ending March 31, 1916 (Part VI.—Subsidized Steamship Services, with Statistics showing Steamship Traffic to December 31, 1916, and Estimates for fiscal year 1917-1918). Presented by Sir George Foster, May 3, 1917.. ..*Printed for distribution and sessional papers.*

10*f*. Report of the Department of Trade and Commerce for the fiscal year ended March 31, 1916: Part VII—Trade of Foreign Countries, Treaties and Conventions. Presented by Sir George Foster, 1917.. .. ..*Printed for distribution and sessional papers.*

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11. Report of the Department of Customs for the year ended March 31, 1916. Presented by Hon. Mr. Reid, January 29, 1917.. ..*Printed for distribution and sessional papers.*

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12, 13, 14. Reports, Returns and Statistics of the Inland Revenues of the Dominion of Canada, for the fiscal year ended March 31, 1916. Part I.—Excise. Part II.—Weights and Measures, Gas and Electricity. Part III.—Adulteration of Food. Presented by Sir James Lougheed, January 26, 1917...*Printed for distribution and sessional papers.*

15. Report of the Minister of Agriculture for the Dominion of Canada, for the year ended March 31, 1916. Presented by Hon. Mr. Burrell, January 26, 1917.
Printed for distribution and sessional papers.

15*a*. Report of the Dairy and Cold Storage Commissioner for the fiscal year ending March 31, 1916. (Dairying, Fruit, Extension of Markets and Cold Storage.) Presented by Hon. Mr. Burrell, 1917.. .. ..*Not printed.*

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15*b*. Report of the Veterinary Director General for the year ending March 31, 1916. Presented by Hon. Mr. Burrell, 1917... .. ..*Printed for distribution and sessional papers.*

15*c*. Report on "The Agricultural Instruction Act," 1915-16, pursuant to Section 8, Chapter 5 of 3-4 George V. Presented by Hon. Mr. Patenaude, January 31, 1917.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 9.

(This volume is bound in two parts.)

16. Report of the Director and Officers of the Experimental Farms for the year ending 31st March, 1916.—Volumes I, II and III. Presented by Sir George Foster, August 13, 1917.
Printed for distribution and sessional papers.

17. Criminal Statistics for the year ended September, 1915. (Appendix to the Report of the Minister of Trade and Commerce for the year 1915.) Presented by Sir George Foster, 1917. .. ..*Printed for distribution and sessional papers*

18. Return of By-elections for the House of Commons of Canada held during the year 1916. Presented by Hon. Mr. Speaker, 1917.. .. ..*Not printed.*

CONTENTS OF VOLUME 10.

19. Report of the Minister of Public Works on the works under his control for the fiscal year ended March 31, 1916. Presented by Hon. Mr. Rogers, January 26, 1917.
Printed for distribution and sessional papers.

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20. Annual Report of the Department of Railways and Canals, for the fiscal year from April 1, 1915, to March 31, 1916. Presented by Hon. Mr. Cochrane, April 19, 1917.
Printed for distribution and sessional papers.

20*a*. Canal Statistics for the season of Navigation, 1916. Presented by Hon. Mr. Reid, May 7, 1917... .. ..*Printed for distribution and sessional papers.*

20*b*. Railway Statistics of the Dominion of Canada, for the year ended 30th June, 1916. Presented by Hon. Mr. Cochrane, April 24, 1917.
Printed for distribution and sessional papers.

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20*c*. Eleventh Report of the Board of Railway Commissioners for Canada, for the year ending 31st March, 1916. Presented by Hon. Mr. Cochrane, January 23, 1917.
Printed for distribution and sessional papers.

20*d*. Telephone Statistics of the Dominion of Canada, for the year ended June 30, 1916. Presented by Hon. Mr. Cochrane, April 19, 1917.
Printed for distribution and sessional papers.

20*e*. Express Statistics of the Dominion of Canada, for the year ended June 30, 1916. Presented by Hon Mr. Cochrane, April 25, 1917.
Printed for distribution and sessional papers.

20*f*. Telegraph Statistics of the Dominion of Canada, for the year ended June 30, 1916. Presented by Hon. Mr. Cochrane, April 19, 1917.
Printed for distribution and sessional papers.

20*g*. Report of the Royal Commission appointed to consider the general problem of transportation in Canada, comprising:—Report of Sir H. F. Drayton and Mr. W. M. Acworth; Report of Mr. A. H. Smith; and, Appendices A and B, being Report of Appraisal of Canadian Northern Railway System and Grand Trunk Pacific Railway, by Mr. Geo. F. Swain, C.E. Presented by Sir Thomas White, May 2, 1917.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 13.

21. Forty-ninth Annual Report of the Department of Marine and Fisheries, for the year 1915-16—Marine. Presented by Hon. Mr. Hazen, January 23, 1917.
Printed for distribution and sessional papers.

22. List of Shipping issued by the Department of Marine and Fisheries, being a list of vessels on the Registry Books of the Dominion of Canada, on the 31st day of December, 1916. Presented by Hon. Mr. Hazen, September 4, 1917.
Printed for distribution and sessional papers.

23. Supplement to the Forty-ninth Annual Report of the Department of Marine and Fisheries for the fiscal year 1915-16. (Marine)—Steamboat Inspection Report. Presented by Hon. Mr. Hazen, April 19, 1917... ..*Printed for distribution and sessional papers.*

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24. Report of the Postmaster General for the year ended 31st March, 1916. Presented by Hon. Mr. Blondin, February 1, 1917...*Printed for distribution and sessional papers.*

25. Annual Report of the Department of the Interior, for the fiscal year ending March 31, 1916. Presented by Hon. Mr. Roche, January 22, 1917.
Printed for distribution and sessional papers.

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25*b*. Annual Report of the Topographical Surveys Branch of the Department of Interior, 1915-16. Presented by Hon. Mr. Roche, June 19, 1917.
Printed for distribution and sessional papers.

25*c*. Report of Hydrometric Surveys (Stream Measurements), for the calendar year 1915. Presented by Hon. Mr. Roche, April 19, 1917.
Printed for distribution and sessional papers.

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25*d*. Fifteenth Report of the Geographic Board of Canada for year ended March 31, 1916. Presented, 1917.. .. ..*Not printed.*

25*e*. Report of the British Columbia Hydrometric Survey for the calendar year 1915 (Water Resources Paper No. 18 of the Dominion Water Power Branch, Department of the Interior). Presented by Hon. Mr. Roche, July 5, 1917.
Printed for distribution and sessional papers.

25*f*. Progress Report of the Manitoba Hydrometric Survey for the calendar year 1915 (Water Resources Paper No. 19 of the Dominion Water Power Branch, Department of the Interior). Presented by Hon. Mr. Roche, July 7, 1917.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 17.

26. Summary Report of the operations of the Geological Survey, Department of Mines, for the calendar year, 1916. Presented by Hon. Mr. Meighen, August 28, 1917.
Printed for distribution and sessional papers.

26*a*. Summary Report of the Mines Branch of the Department of Mines, for the calendar year ending 31st December, 1915. Presented by Hon. Mr. Patenaude, April 19, 1917.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 18.

27. Report of the Department of Indian Affairs for the year ended March 31, 1916. Presented by Hon. Mr. Roche, January 22, 1917.
Printed for distribution and sessional papers.

28. Report of the Royal Northwest Mounted Police, 1916. Presented by Sir Robert Borden, April 19, 1917.. .. ..*Printed for distribution and sessional papers.*

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29. Report of the Secretary of State of Canada for the year ended March 31, 1916. Presented by Hon. Mr. Roche, August 18, 1917... ..*Printed for distribution and sessional papers.*

30. The Civil Service List of Canada for the year 1916. Presented 1917.
Printed for distribution and sessional papers.

31. Eighth Annual Report of the Civil Service Commission of Canada for the year ended August 31, 1916. Presented by Hon. Mr. Patenaude, April 19, 1917.
Printed for distribution and sessional papers.

32. Annual Report of the Department of Public Printing and Stationery for the fiscal year ended March 31, 1916. Presented by Sir Robert Borden, July 31, 1917.
Printed for distribution and sessional papers.

33. Report of the Secretary of State for External Affairs for the year ended March 31, 1917. Presented 1917... .. ..*Printed for distribution and sessional papers.*

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34. Report of the Minister of Justice as to the Penitentiaries of Canada for the fiscal year ending March 31, 1916. Presented 1917...*Printed for distribution and sessional papers.*

35. Report of the Militia Council for the Dominion of Canada, for the fiscal year ending March 31, 1916. Presented by Sir A. E. Kemp, February 3, 1917.
Printed for distribution and sessional papers.

36. Report of the Department of Labour for the fiscal year ending March 31, 1916. Presented by Hon. Mr. Crothers, January 22, 1917.
Printed for distribution and sessional papers.

36a. Ninth Report of the Registrar of Boards of Conciliation and Investigation of the proceedings under "The Industrial Disputes Investigation Act, 1907," for the fiscal year ending March 31, 1916. Presented by Hon. Mr. Crothers, January 22, 1917.
Printed for distribution and sessional papers.

37. Twelfth Annual Report of the Commissioners of the Transcontinental Railway, for the year ended March 31, 1916. Presented by Hon. Mr. Cochrane, April 19, 1917.
Printed for distribution and sessional papers.

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38. Report of the Department of the Naval Service, for the fiscal year ending March 31, 1916. Presented by Hon. Mr. Hazen, January 22, 1917.
Printed for distribution and sessional papers.

38a. Supplement to the Sixth Annual Report of the Department of Naval Service, Fisheries Branch,—Contributions to Canadian Biology, being studies from the biological stations of Canada, 1915-1916. Presented by Hon. Mr. Hazen, June 4, 1917.
Printed for distribution and sessional papers.

38c. Lobster Conservation in Canada, by A. P. Knight, M.A.
Printed for distribution and sessional papers.

39. Forty-ninth Annual Report of the Fisheries Branch of the Department of the Naval Service, 1915-16. Presented by Hon. Mr. Hazen, January 22, 1917.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 21—*Continued.*

40. The Report of the Joint Librarians of Parliament. Presented by Hon. Mr. Speaker, January 19, 1917... .. ..*Not printed.*

41. Copies of Orders in Council, as follows:—

P.C. 1917, dated the 15th day of July, 1916, respecting the appointment of a Parliamentary Under Secretary of State for External Affairs during the continuance of the war.

P.C. 2576, dated the 21st day of October, 1916, respecting the appointment of Hugh Clark, Member of the House of Commons for the Electoral District of North Bruce, to the position of Parliamentary Under Secretary for Exernal Affairs, during the continuance of the present war.

P.C. 1720, dated the 15th day of July, 1916, respecting the appointment of a Parliamentary Secretary of the Department of Militia and Defence, during the continuance of the present war.

P.C. 1730, dated the 19th day of July, 1916, respecting the appointment of Fleming Blanchard McCurdy, Member of the House of Commons for the Electoral District of Shelburne and Queens, to the position of Parliamentary Secretary of the Department of Militia and Defence, during the continuance of the present war.

P.C. 2651, dated the 28th day of October, 1916, respecting the establishment of a ministry in London charged with the administration of the overseas forces of Canada, and the direction and control of the expenditures abroad in connection therewith.

P.C. 2656, dated the 31st day of October, 1916, respecting the appointment of Honourable Sir George Halsey Perley, to the position of Minister of Overseas Military Forces from Canada in the United Kingdom. Presented by Sir Robert Borden, January 18, 1917.. .. ..*Printed for sessional papers only.*

42. Papers relating to the Imperial War Conference, 1917. Presented by Sir Robert Borden, January 22, 1917.. .. ..*Printed for sessional papers only.*

42*a*. Copy of a Parliamentary Paper (Cd. 8566), containing extracts from the Minutes of the Proceedings of the Imperial War Conference, 1917, and Papers laid before the Conference. Presented by Sir Robert Borden, June 15, 1917.

Printed for distribution and sessional papers.

43. Copies of Orders in Council, as follows:—

P.C. 64-15-25, dated the 29th June, 1916, authorizing the superannuation of Mr. Silas Blair Kent, a clerk in Sub-division "B" of the First Division, employed as chief fishing bounty officer of the Naval Service Department.

P.C. 3192, dated 30th December, 1916, Regulations governing the payment of Separation Allowance in the Royal Canadian Navy and Royal Naval Canadian Volunteer Reserve.

P.C. 3108, dated 19th September, 1916, Regulations governing payment of "Command Money" to officers on "Special Service," etc., in the Royal Canadian Navy.

P.C. 2942, dated 29th November, 1916, Regulations governing payment of "Hard-lying Money" in the Royal Canadian Navy.

P.C. 2442, dated 11th October, 1916, Amendment to Order in Council P.C. 1334, dated 3rd June, 1916, establishing Rates of Pensions for the Military and Naval Forces of Canada.

P.C. 2130, dated 9th September, 1916, Regulations for enrolment of men in the Royal Canadian Volunteer Reserve for service in the Royal Navy.

P.C. 1939, dated 18th August, 1916, Order made under War Measures Act, 1914, to reduce risk of persons of enemy nationality landing in Canada under guise of neutrals. Presented by Hon. Mr. Hazen, January 22, 1917... .. ..*Not printed.*

43*a*. Copy of extract from Order in Council No. P.C. 942, dated 5th April, 1917, with reference to Regulations governing the Payment of Separation Allowance in the Royal Canadian Navy. Presented by Hon. Mr. Hazen, June 11, 1917.. .. ..*Not printed.*

43*b*. Copy of extract from Order in Council No. P.C. 1397, dated 21st May, 1917: Rules and Regulations to apply to persons who are employed in or who are in or in the vicinity of any store, wharf, etc., in or upon which any ammunition, etc., is handled. Presented by Hon. Mr. Hazen, June 14, 1917... .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

43c. Copy of Extract from Order in Council No. P.C. 1576, dated 11th June, 1917: Regulations instituting the rank of Chief Skipper and Skipper in the Royal Canadian Navy. Presented by Hon. Mr. Hazen, June 20, 1917.. .. ..*Not printed.*

43d. Copy of Order in Council, P.C. 69/1774, dated 28th June, 1917, containing Regulations for the Payment of Specialist Allowance to R.N.C.V.R. and R.N.C.V.R. Overseas Division. Presented by Hon. Mr. Hazen, July 9, 1917.. .. ..*Not printed*

43e. Copy Extract from Order in Council, P.C. No 1783, dated 29th June, 1917:—Rules and Regulations governing the issue of Pay, Allowances and Pensions, Department of the Naval Service—Copy Extract from Order in Council, P.C. No. 1871, dated 6th July, 1917; —Amendment to the Regulations for the payment of Separation Allowance to the dependents of those on Active Service under the Naval Service Department. Presented by Sir James Lougheed, July 12, 1917. (Senate)... .. ..*Not printed.*

43f. Extract from Order in Council, P.C. 1993 of the 17th July, 1917: Scale of Subsistence Allowances to Officers and men of the Naval Service when travelling on duty.—And also,—Extract from Order in Council, P.C 1994 of the 17th July, 1917: Scale of Allowances in lieu of lodging, provisions, fuel and light, for Officers and men of the Naval Service. Presented by Hon. Mr. Hazen, August 6, 1917.. .. ..*Not printed.*

43g. Extract from Order in Council, P.C 2105, dated 9th August, 1917: Amendments to regulations for the issue of pay, allowances and pensions to officers, warrant officers and men invalided, etc., from the Naval Service Presented by Hon. Mr. Hazen, August 27, 1917... .. ..*Not printed.*

43h. Extract from Order in Council ("Defence of Canada Order"), P.C. No. 2277, dated the 17th August, 1917:—Amendments respecting Naval Service The Senate..*Not printed.*

43i. Extract from Order in Council, No. P.C. 2433, dated 1st September, 1917:—Regulations *re* Pay and Allowances to Officers and Men after discharge from the Canadian Naval Service. The Senate.. .. ..*Not printed.*

44. Correspondence relating to the withdrawal of the Ross Rifle from the Canadian Army Corps Presented by Sir Robert Borden, January 22, 1917.
Printed for sessional papers only.

45. Report of the War Purchasing Commission, covering period from its appointment on May 8, 1915, to December 31, 1916 Presented by Hon. Mr. Kemp, January 23, 1917.
Not printed.

46. Copies of Orders in Council respecting the establishment of a National Service Board of Canada, and appointments thereto, under the provisions of the War Measures Act, 1914. Presented by Sir Robert Borden, January 23, 1917.
Printed for sessional papers only.

47. Copy of Agreement between His Majesty the King and The Acadia Coal Company, Ltd., concerning the lease of the Vale Railway. Presented by Hon. Mr. Cochrane, January 23, 1917... .. ..*Not printed.*

48. Copy of Agreement between His Majesty the King and The Quebec and Saguenay Railway Co., The Quebec Railway Light, and Power Co. The Lotbinière and Megantic Railway Co., and The Quebec Railway Light Heat and Power Co., respecting the acquisition by the Government of the said railways. Presented by Hon. Mr. Cochrane, January 23, 1917.. .. ..*Not printed.*

48a. Return to an Order of the House, of the 23rd April, 1917, for a copy of all proceedings in the Exchequer Court of Canada, and judgment of Mr. Justice Cassels concerning the reference of the Quebec and Saguenay Railway, the Quebec and Montmorency Railway and the Lotbinière and Megantic Railway. Presented June 21, 1917. Mr. Lemieux.
Not printed.

CONTENTS OF VOLUME 21—*Continued.*

48*b*. Return to an Order of the House, of the 14th May, 1917, for a copy of the judgment delivered by Mr. Justice Cassels on the 24th day of January, 1917, in the matter of fixing the price to be paid by the Government for the Quebec, Montmorency and Charlevoix Railway, the Quebec and Saguenay Railway, and the Lotbinière and Megantic Railway, under the statute of last session, Chapter 22, 6-7 George V. Presented June 27, 1917. Mr. Graham.. .. ..*Not printed.*

49. Statement of Governor General's Warrants issued since the last Session of Parliament on account of 1916-17. Presented by Sir Thomas White, January 25, 1917.
Not printed.

49*a*. Statement of Governor General's Warrants issued since the adjournment of Parliament on February 7, 1917. Presented by Sir Thomas White, April 24, 1917..*Not Printed.*

50. Copy of Amendments to the Radiotelegraph Regulations since the 1st August, 1914. Presented by Hon. Mr. Hazen, January 25, 1917... .. ..*Not printed.*

50*a*. Copy of Amendment to subsection (*d*) of section 104 of the Radiotelegraph Regulations; Operation of ship stations within a Canadian harbour. Presented by Hon. Mr. Hazen, January 29, 1917.. .. .. *Not printed.*

50*b*. Copy of Amendment to Radiotelegraph Regulations issued by the Minister of the Naval Service, under Section 11, Chapter 43, of the Radiotelegraph Act, 3-4 George V. Presented by Hon. Mr. Hazen, April 19, 1917.. .. ..*Not printed.*

51. Statement of Expenditure on account of "Miscellaneous Unforeseen Expenses," from the 1st April, 1916, to the 18th January, 1917, in accordance with the Appropriation Act of 1916. Presented by Sir Thomas White, January 25, 1917... .. ..*Not printed.*

52. Statement of Temporary Loans issued since April 1, 1916, to 18th January, 1917. Presented by Sir Thomas White, January 25, 1917... .. ..*Not printed.*

53. Report and Statement of Receipts and Expenditures of the Ottawa Improvement Commission to March 31, 1916. Presented by Sir Thomas White, January 25, 1917.
Not printed.

54. Statement of the Receipts and Expenditures of the Royal Society of Canada, for the year ended April 30, 1916. Presented by Sir Thomas White, January 25, 1917...*Not printed.*

55. Statement of Receipts and Expenditures of the National Battlefields Commission to 31st March, 1916. Presented by Sir Thomas White, January 25, 1917.. ..*Not printed.*

56. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ending 31st December, 1916, showing name, rank, salary, service allowance and cause of retirement of each person superannuated or retired, also whether vacancy has been filled by promotion, or by appointment, and the salary of any new appointee. Presented by Sir Thomas White, January 25, 1917... .. ..*Not printed.*

57. Statement in pursuance of Section 17 of the Civil Service Insurance Act, for the year ending March 31, 1916. Presented by Sir Thomas White, January 25, 1917.
Not printed.

58. Regulations under "The Destructive Insect and Pest Act," pursuant to Section 9, Chapter 31 of 9-10 Edward VII. Presented by Hon. Mr. Burrell, January 26, 1917
Not printed.

59. Account of the average number of men employed on the Dominion Police Force during each month of the year 1916, and of their pay and travelling expenses, pursuant to Chapter 92, Section 6, Subsection 2, of the Revised Statutes of Canada. Presented by Hon. Mr. Doherty, January 26, 1917... .. ..*Not printed*

60. Copy of the evidence taken before the Hon. Sir Charles Davidson, Kt., Commissioner appointed to inquire into the purchase by and on behalf of the Government of the Dominion of Canada, of Arms, Munitions, Implements, Materials, Horses, Supplies, and other things for the purpose of the present war, and as to the expenditures and payments made or agreed to be made therefor; together with the Report of the said Commissioner concerning the sale of Small Arms Ammunition; purchase of Submarines, and Military Cloth (Auburn Woollen Mills Co.). Presented by Hon. Mr. Meighen, January 30, 1917.. .. ..*Not printed.*

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61. Report submitted by the officer in charge of the Canadian Records Office, London, Eng., to The Right Honourable Sir Robert Borden, G.C.M.G., M.P., Prime Minister of Canada, on the work of the Canadian War Records Office since the date of its foundation to the 11th January, 1917. Presented by Sir Robert Borden, January 31, 1917.
Not printed.

62. Annual Return respecting Trade Unions under Chapter 125, R.S.C., 1906. Presented by Hon. Mr. Patenaude, January 31, 1917.. .. ..*Not printed.*

63. A detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (22nd January, 1916) submitted to the Parliament of Canada under Section 32 of Chapter 19, of the Revised Statutes of Canada, 1906. Presented by Hon. Mr. Blondin, January 31, 1917... ..*Not printed.*

64. Return of Orders in Council which have been published in the *Canada Gazette,* between the 1st January, 1916, and the 31st December, 1916, in accordance with the provisions of Section 5 of "The Dominion Lands Survey Act," Chapter 21, 7-8 Edward VII. Presented by Hon. Mr. Roche, February 1, 1917.. .. ..*Not printed.*

65. Return of Orders in Council which have been published in the *Canada Gazette,* between 1st January, 1916, and the 31st December, 1916, in accordance with the provisions of "The Forest Reserves and Park Act," Section 19, of Chapter 10, 1-2 George V. Presented by Hon. Mr. Roche, February 1, 1917.. .. ..*Not printed.*

66. Return of Orders in Council which have been published in the *Canada Gazette,* between the 1st January, 1916, and the 31st December, 1916, in accordance with the provisions of Chapter 47, 2 George V, entitled "The Railway Belt Water Act." Presented by Hon. Mr. Roche, February 1, 1917... .. ..*Not printed.*

67. Return of Orders in Council which have been published in the *Canada Gazette* and in the British Columbia *Gazette,* between 1st January, 1916, and the 31st December, 1916, in accordance with provisions of Subsection (*d*) of Section 38 of the regulations for the survey, administration, disposal and management of Dominion Lands within the 40-mile Railway Belt in the Province of British Columbia. Presented by Hon. Mr. Roche, February 1, 1917.. .. ..*Not printed.*

68. Return showing all lands sold by the Canadian Pacific Railway Company during the year, from the 1st October, 1915, to 30th September, 1916, together with the names of the purchasers, in accordance with the Statutes of Canada, 1886, Chapter 9, Section 8. Presented by Hon. Mr. Roche, February 1, 1917.. .. ..*Not printed.*

69. Return of Orders in Council which have been published in the *Canada Gazette,* between 1st January, 1916, and the 31st December, 1916, in accordance with the provisions of Section 77 of "The Dominion Lands Act," Chapter 20, 7-8 Edward VII. Presented by Hon. Mr. Roche, February 1, 1917.. .. ..*Not printed.*

70. Certified copies of Reports of the Committee of the Privy Council, approved by His Excellency the Governor General on the 29th November, 1916, giving authority for the cancellation on and from the 1st January, 1917, of the agreements between the Government of Canada and the Governments of Manitoba, Saskatchewan and Alberta, respectively, respecting the services of the Royal North West Mounted Police in those provinces. Presented by Sir Robert Borden, February 1, 1917.
Printed for sessional papers only

70*a*. Return to an Address to His Excellency the Governor General, of the 31st January, 1917, for a copy of all documents, letters, messages, correspondence, etc., respecting the termination of the agreements between the Government of Canada and the Governments of the Provinces of Saskatchewan and Alberta in reference to the Royal North West Mounted Police. Presented June 1, 1917. Mr. McCraney.. .. ..*Not printed.*

71. Return to an Order of the House, of the 20th March, 1916, for a copy of all telegrams, letters and correspondence concerning the appointment of Mr. Alfred Gravel, Harbour Commissioner of Quebec, and concerning all other candidates for the position of Commissioner on the Harbour Board of Quebec, to represent the South Shore. Presented February 2, 1917. Mr. Bourassa... .. ..*Not printed.*

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72. Return to an Address to His Royal Highness the Governor General, of the 2nd February, 1914, for a copy of all Orders in Council, correspondence, petitions, telegrams and other papers or documents bearing date between the years 1885 and 1914 in any way relating to the prohibition of the export of Sockeye Salmon from the Province of British Columbia. Presented February 2, 1917.—*Mr. Sinclair*.. .. ..*Not printed.*

73. Seventh Annual Report of the Commission of Conservation for the fiscal year ending March 31, 1916. Presented by Hon. Mr. Hazen, February 5, 1917.. .. ..*Not printed.*

74. Copy of correspondence between Sir Robert Borden and Sir Wilfrid Laurier respecting proposals for the extension of the term of Parliament, November 3, 1915, to January 3, 1917. Presented by Sir Robert Borden, May 23, 1917.

Printed for sessional papers only.

75. Detailed Statement of Customs Duties and the Refund thereof, under Section 92, Consolidated Revenue Act, for the year ended March 31, 1916 (Senate)... ..*Not printed.*

75*a*. Detailed Statement of all Remissions and Refunds of the Tolls or duties for the fiscal year ending March 31, 1916.—Also,—Supplementary statement of the Remissions and Refunds of Tolls and Duties from the Department of Marine and Fisheries. Presented by Hon. Mr. Patenaude, April 19, 1917.. .. .. *Not printed.*

76. Ordinances of the Yukon Territory, passed by the Yukon Council in 1916. (Senate).

Not printed.

76*a*. Return of Orders in Council passed under the provisions of Section 18, of Chapter 63, Revised Statutes of Canada, "An Act to provide for the Government of the Yukon Territory." Presented by Hon. Mr. Patenaude, April 19, 1917.. .. ..*Not printed.*

76*b* Return of Orders in Council passed in the year 1917, under the provisions of Section 18, of Chapter 63, Revised Statutes of Canada, "An Act to provide for the Government of the Yukon Territory." Presented by Hon. Mr. Sevigny, July 5, 1917.

Not printed.

77. Copy of extract from Order in Council No. P.C. 43 263, dated 27th January, 1917, authorizing Regulations governing the payment of Allowance for the Accountant Officers in the Royal Canadian Navy of Receiving Ships and Depot Ships, in accordance with the provisions of Secton 47, Chapter 43, 9-10 Edward VII. Presented by Hon. Mr. Hazen, February 6, 1917.. .. ..*Not printed.*

78. Return to an Order of the House of the 31st January, 1917, for a copy of all correspondence respecting the appointment of a Commission to investigate the financial and economic condition of Canadian railways, showing the names of the Commissioners, the rate of their remuneration, along with the names of the secretaries and engineers appointed by them, or by the Commission, and the rate of their remuneration. Presented February 6, 1917.—*Sir Wilfrid Laurier*.. .. ..*Not printed.*

79. Return to an Order of the House of the 31st January, 1917, for a copy of all papers, letters, telegrams and other documents relative to the removal of Mr. H. D. McKenzie as mechanical foreman at Stellarton on the Canadian Government Railways, and the appointment of his successor. Presented February 6, 1917.—*Mr. Macdonald.*

Not printed.

80. Return to an Order of the House of the 31st January, 1917, for a return showing the quantity of freight carried over the Grand Trunk Pacific Railway between Lévis and Moncton since that portion of said railway has been operated by the Canadian Government Railways System. Presented February 6, 1917.—*Mr. Copp*.. .. ..*Not printed.*

81. Return to an Order of the House of the 12th April, 1916, for a Return showing:—1. How many clerks there are in the Interior Department who belong to and are paid from the outside service vote and who work in the inside service? 2. The names of said clerks? 3. Salary paid to each? 4. How long each has been in the service of the Department? 5. If all or any of these clerks have passed any examination. If so, what examination and on what date or dates? Presented February 6, 1917.—*Mr. Turriff*.. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

82. Return to an Order of the House of the 15th March, 1916, for a copy of all correspondence between the Government and the Provinces, regarding increased co-operation in the promotion of immigration and land settlement, commencing with a letter of the Minister of the Interior to the Provincial Prime Ministers, in November, 1911. Presented February 6, 1917.—*Sir Wilfrid Laurier*... .. ..*Not printed.*

83. Return to an Order of the House of the 27th March, 1916, for a Return showing:—1. The names and salaries of the persons employed in the Immigration Service in the City of Montreal; their respective salaries when appointed and what they receive at the present time? 2. Which of such employees are given travelling or other expenses, and how much has been been paid to each on that account since their respective appointments. Presented February 6, 1917.—*Mr. Lachance*.. .. ..*Not printed.*

84. Return to an Order of the House of the 31st January, 1917, for a return showing the quantities of timber cut, and the sum paid therefor, to date, under the lease or sale of timber made by the Indian Department to Mr. Arthur Webber from lands situated near Ship Harbour Lake, Halifax County, together with the name or names of all surveyors of the timber cut from the said Indian lands under the above-mentioned sale or lease, and copies of all reports made in connection therewith by said surveyors. Presented February 6, 1917.—*Mr. McLean (Halifax)*... .. ..*Not printed.*

85. A copy of the Special Report made by the Royal Commission on Indian Affairs on the Kitsilano Indian Reserve, together with the Order in Council passed on the 28th March, 1916, and all other papers and correspondence relating to the Report. (Senate). *Not printed.*

86. Return to an Address to His Excellency the Governor General, of the 31st January, 1917, for a copy of all correspondence exchanged between the Dominion Government and the Provincial Governments inviting them to a conference on the subject of making provisions for returned soldiers, including a copy of the proceedings of the conference which took place on the 10th of January at Ottawa on the same subject. Presented February 7, 1917.—*Sir Wilfrid Laurier* .. ..*Printed for sessional papers only.*

87. Return to an Order of the House, of the 31st January, 1917, for a copy of all correspondence between any Member of the Government and Sir Thomas Tait referring to his appointment to, and resignation from, the National Service Board. Presented February 7, 1917.—*Mr. Graham*.. .. ..*Printed for sessional papers only.*

87*a*. Return to an Order of the House of the 31st January, 1917, for a copy of all correspondence between Mr. Murray, Secretary of the Manufacturers' Association, and any Member of the Government, or Sir Thomas Tait, as head of the National Service Board, concerning his suggested appointment as Secretary of the National Service Board. Presented June 1, 1917.—*Mr. Graham*.. .. ..*Not printed.*

88. Correspondence between the Prime Minister and the Leader of the Opposition concerning the formation of a Parliamentary National Service Commission. Presented by Sir Robert Borden, February 7, 1917... .. ..*Printed for sessional papers only.*

89. Return to an Order of the House, of the 5th February, 1917, for a copy of all petitions, letters, telegrams, reports and other documents relative to the closing of the Canard and Splitlog Post Office and the opening of Loiselleville Post Office, in the County of Essex, together with a copy of all petitions and documents relative to the establishment of rural mail routes from the Loiselleville Post Office. Presented February 7, 1917.—*Mr. Wilcox*.. .. ..*Not printed.*

90. Report on the Canadian Army Medical Service, by Colonel Herbert A. Bruce, Special Inspector General, Medical Services, Canadian Expeditionary Force, dated at London, England, 20th September, 1916. Presented by Sir Robert Borden, February 7, 1917. *Not printed.*

90*a*. Report on the Canadian Army Medical Service, by a Board of Officers, presided over by Surgeon-General Sir William Babtie, K.C.M.G., C.B., V.C., dated at London, England, December 22, 1916. Presented by Sir Robert Borden, February 7, 1917..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

90*b*. Copy of Interim Report of the Surgeon-General G. C. Jones, Director Medical Services, Canadians, in reply to the Report on the Canadian Army Medical Service by Colonel Herbert A. Bruce, Special Inspector-General, Medical Services, Canadian Expeditionary Force, dated London, September 28, 1916. Presented by Sir Edward Kemp, May 31, 1917.. .. ..*Not printed.*

91. Return to an Order of the House, of the 7th February, 1917, for a copy of all letters, telegrams, papers and other documents relative to the closing of the Marine Agency at Pictou last autumn, and as to the re-opening of said agency. Presented April 19, 1917.—*Mr. Macdonald*.. .. ..*Not printed.*

92. Return to an Order of the House of the 5th February, 1917, for a Return showing:—1. The number of horses that have been bought in Canada for war purposes in each of the years 1914, 1915 and 1916, respectively, (*a*) for the Canadian Army; (*b*) for Britain; and (*c*) for France and our other Allies. 2. The amount paid for the horses in each of the years for the different countries mentioned. Presented April 19, 1917.—*Mr. Edwards*.. .. ..*Not printed.*

93. Return to an Order of the House of the 31st January, 1917, for a Return showing:—1. The names, home addresses and former occupations of all censors, decoders or other employees of the Government in the different cable stations in Nova Scotia during the calendar year 1916. 2. The name of the person who recommended each of the said censors, decoders or employees. 3. What salary was paid to each of said persons for the calendar year 1916. Presented April 19, 1917.—*Mr. Sinclair*.. ..*Not printed.*

94. Copies of General Orders promulgated to the Militia for the period between December 30, 1915, and February 8, 1917. Presented by Sir Edward Kemp, April 19, 1917.
Not printed.

95. Return to an Order of the House of the 11th March, 1915, for a copy of all charges, correspondence, letters, telegrams and other documents relative to the dismissal of Frank Dunlop, of Graves Point, at Sydney Mines, in the riding of North Cape Breton and Victoria, N.S., and the expenses of such investigation in detail. Presented April 19, 1917.—*Mr. McKenzie*.. .. ..*Not printed.*

96. Return to an Order of the House of the 3rd April, 1916, for a Return showing:—1. The names of the staff in the office of the High Commissioner for Canada in London? 2. Whether any of these officials are natives of Canada. If so which ones? 3. Whether it is true, as alleged, that Canada is the only British Dominion which employs none of its natives in its High Commissioner's Office. Presented April 19, 1917.—*Mr. Proulx*.
Not printed.

97. Return to an Address to His Royal Highness the Governor General, of the 22nd February, 1915, for a copy of all Orders in Council, memoranda, correspondence or other documents in the possession of the Government, or any Department thereof, relating to the trade in dried fish and wines between Portugal and Canada. Presented April 19, 1917.—*Mr. Sinclair*.. .. ..*Not printed.*

98. Return to an Order of the House of the 31st January, 1917, for a tabulated statement showing the number of divorces granted by the Parliament of Canada since 1867. Presented April 19, 1917.—*Mr. Lemieux*.. .. ..*Not printed.*

99. Return to an Order of the House of the 3rd February, 1916, for a copy of all letters, telegrams and other documents, including tenders, relating to the mail contract from Tatamagouche to New Annan and Tatamagouche Mountain, in the County of Colchester. Presented April 19, 1917.—*Mr. Macdonald*.. .. ..*Not printed.*

100. Copy of new Rule in substitution of Rule 236 of the General Rules and Orders now in force regulating the practice and procedure in the Exchequer Court of Canada, made on the 16th day of February, 1917. Presented by Hon. Mr. Patenaude, April 19, 1917.
Not printed.

CONTENTS OF VOLUME 21—*Continued.*

100*a*. Copy of Rule 200 of the General Rules and Orders now in force regulating the practice and procedure in the Exchequer Court of Canada; also, Copy of General Order respecting fees and costs in the Exchequer Court in the exercise of its jurisdicton as a Court of Admiralty. Presented by Hon. Mr. Patenaude, May 3, 1917.....*Not printed.*

101. Return to an Order of the House of the 5th February, 1917, for a return showing a list of all persons employed during the year 1916 in the round-house of the Canadian Government Railways at Pirate Harbour, N.S., as brakemen, telegraphers, cleaners and labourers, showing the dates of their appointments and length of time employed respectively, and also the monthly rate of wages paid to each of said employees. Presented April 19, 1917.—*Mr. Sinclair*.. .. ..*Not printed.*

102. Return to an Order of the House of the 31st January, 1917, for a copy of all letters, papers, telegrams and other documents relative to the application for, and the granting of, a Conciliation Board to the employees of the Acadia Coal Company in the spring of 1916, the proceedings of said Board, and all other papers in relation to the same. Presented April 19, 1917.—*Mr. Macdonald*.. .. ..*Not printed.*

103. Return to an Order of the House of the 31st January, 1917, for a copy of all correspondence, telegrams and documents of all kinds exchanged between any person or persons and the Department of Labour or any other Department of the Government relating to the labour trouble at Thetford Mines, P.Q., and also copies of all correspondence exchanged between the different Departments of the Government respecting the same question. Presented April 19, 1917.—*Mr. Verville*.. .. ..*Not printed.*

104. Return to an Order of the House of the 31st January, 1917, for a copy of all letters, papers, telegrams and other documents relative to the application for, and the refusal to grant a Conciliation Board as petitioned for under the Industrial Disputes Investigation Act by the employees of the Canadian Government Railway at Pictou, who were members of the Longshoremen's Union at Pictou during the year 1916. Presented April 19, 1917.—*Mr. Macdonald*.. .. ..*Not printed.*

105. Return to an Order of the House of the 7th February, 1917, for a copy of the contract between the Government and the P. Lyall & Sons Construction Company for the reconstruction of the Parliament Building. Presented April 20, 1917.—*Mr. Murphy.*
Printed for Sessional Papers only.

106. Copy of Order in Council P.C. 1062, dated 16th April, 1917, ordering that wheat, wheat flour and semolina be transferred to the list of goods which may be imported into Canada free of duty of customs. Presented by Sir Thomas White, April 20, 1917.
Printed for Sessional Papers only.

107. Return to an Order of the House of the 19th April, 1917, for a return showing:—1. Whether the Government is aware as to whether there are cases in the Military Service in which men after enlistment have been given leave on harvesting furlough, and during such leave have been injured by accident, and who have in consequence of such accident incurred hospital bills, and who having been treated in hospital have returned to military duty and been discharged on account of injuries so received. 2. If so, whether claims have been made for hospital care and treatment. 3. If such claims have been recognized by the Government. 4. If not, why not. 5. If so, what action has been taken in connection therewith. 6. Whether in such cases the enlisted person is not entitled to pay up to time of discharge, and also the payment of his hospital account. Presented April 20, 1917.—*Mr. MacNutt*.. .. ..*Not printed.*

108. Copy of a communication from the Deputy Minister of Militia and Defence, relative to the total value of the Oliver equipment, so-called, supplied the Canadian soldiers who have crossed to England since the commencement of the present war. Presented by Sir Edward Kemp, April 20, 1917.. .. ..*Not printed.*

109. Return to an Order of the House of the 19th April, 1917, for a return showing:—1. The names of the Members of Parliament who now belong, or who did belong to the Overseas

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Forces or the Militia Forces of Canada since the present war was declared. 2. Whether these Members or any of them were, or are in receipt of pay from the Militia Department and in receipt of their indemnity as Members at the same time. 3. Whether the wives of these Members, or any of them were, or are in receipt of separation allowance. Presented April 20, 1917.—*Mr. Hughes (Kings, P.E.I.)*.. .. ..*Not printed.*

109*a*. Supplementary return to an Order of the House of the 19th April, 1917, for a return showing:—1. The names of the Members of Parliament who now belong, or who did belong to the Overseas Forces or the Militia Forces of Canada since the present war was declared. 2. Whether these Members, or any of them were, or are in receipt of pay from the Militia Department and in receipt of their indemnity as Members at the same time. 3. Whether the wives of these Members, or any of them were, or are in receipt of separation allowance. Presented April 24, 1917.—*Mr. Hughes (Kings, P.E.I.)*. . . .*Not printed.*

109*b*. Return to an Order of the House of the 25th April, 1917, for a return showing:—1. How many Members of the House of Commons are serving or have served in the Canadian Army. 2. The names of each of said Members, the date of appointment, and rank. 3. The names of those Members who have resigned or have withdrawn from military service and the date of withdrawal or resignation. 4. How much has been paid to each for military salary, expenses and separation allowance to wife or relatives, respectively. Presented May 31, 1917.—*Mr. Turriff*.. .. ..*Not printed.*

109*c*. Corrected copy of a return to an Order of the House of the 25th April, 1917, for a return showing:—1. How many Members of the House of Commons are serving or have served in the Canadian Army. 2. The names of each of said Members, the date of appointment, and rank. 3. The names of those Members who have resigned or have withdrawn from military service and the date of withdrawal or resignation. 4. How much has been paid to each for military service, expenses and separation allowance to wife or relatives, respectively. Presented June 14, 1917.—*Mr. Turriff*.. .. ..*Not printed.*

110. Return to an Order of the House of the 19th April, 1917, for a return showing:—1. What amounts have been given to the Canadian Patriotic Fund to December 31, 1916, and what amounts have been promised for 1917, by the different counties, towns and cities in each of the different provinces. 2. The names of the different counties, towns and cities, and the respective amounts subscribed and promised by each. 3. What counties, cities and towns in each province, if any, have not contributed any amount to the said fund up to the present time. Presented April 24, 1917.—*Mr. Edwards*.. ..*Not printed.*

110*a*. Return to an Order of the House of the 19th April, 1917, for a return showing:—1. How much money has been subscribed and voted to the Canadian Patriotic Fund by each of the different provinces to December 31, 1916. 2. How much money has been paid to the Canadian Patriotic Fund by each of the different provinces during the same time. 3. How much money has been promised by county, township, city or other grants by each province for the year 1917. 4. How many persons in each province have received assistance from the Canadian Patriotic Fund to December 31, 1916. 5. The total amount so expended in each province. Presented April 24, 1917.—*Mr. Edwards*.. ..*Not printed.*

111. Copy of Order in Council P.C. 802, dated 23rd March, 1917, in respect to taking over of the Ross Rifle Factory by the Government of Canada. Presented by Sir Edward Kemp, April 24, 1917.. .. ..*Not printed.*

112. Return to an Order of the House of the 31st January, 1917, for a copy of all documents, letters, telegrams and other correspondence in the Department of the Interior, relating to grazing leases numbers 2785, 2803, 2843, 3701, 3998, 4603, 5566, 6220 and 6221. Presented April 25, 1917.—*Mr. Steele*.. .. ..*Not printed.*

113. Memorandum from the Superintendent of Immigration respecting the advertising by the Canadian Government in United States newspapers for farm hands to work in Canada; together with a copy of the advertisements and instructions concerning the same. Presented by Hon. Mr. Roche, April 25, 1917.. .. ..*Not printed.*

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114. Copies of Orders in Council:—

P.C. 341, dated the 7th day of February, 1917, respecting the exportation of newsprint paper in sheets or rolls by license only under regulations by the Minister of Customs.

P.C. 445, dated the 17th day of February, 1917, containing orders and regulations respecting the price, sale, control, distribution, transport, etc., of newsprint paper in sheets or rolls.

P.C. 1059, dated the 16th day of April, 1917, empowering the Minister of Customs to fix the quantity and price of newsprint paper furnished or to be furnished to the publishers in Canada by the manufacturers; and controlling the distribution and delivery of the same.

P.C. 1060, dated the 16th day of April, appointing R. A. Pringle a commissioner to conduct an inquiry into and concerning the manufacture, sale, price and supply of newsprint paper within the Dominion of Canada. Presented by Sir Thomas White, April 26, 1917.. .. .. .

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and all other persons, concerning either the construction or repairing or purchase of the wharves at the following places: Ile Perrot Sud, the Church in the Village of Ile Perrot, the Village of Vaudreuil, Pointe Cavagnal, Hudson, Rigaud, Graham, Pointe Fortune, and Ile Perrot Nord. Also, a copy of all specifications and reports already brought down at my request in relation to the documents prior to and since 1904, and a statement of the amounts that have been paid for such construction or repairs, and to whom they were paid. Presented April 30, 1917.—*Mr. Boyer*.. .. ..*Not printed.*

122a. Return to an Order of the House of the 16th February, 1916, for a copy of all letters, petitions, correspondence, telegrams and reports, exchanged between the Government, the engineers residing in the district, and all other persons, concerning the construction and repairing done to the wharves mentioned below, since 1904, and of all data and reports already produced at my request and relating to documents prior to 1904; also the amounts of money paid for such construction and repairing, and to whom paid:—The wharf at Ile Perrot North, South, and at the Church; of the Village of Vaudreuil; of Pointe Cavagnal; of Hudson; of Graham; of Rigaud, and of Pointe Fortune. Presented April 30, 1917.—*Mr. Boyer*.. .. ..*Not printed.*

122b. Return to an Order of the House of the 30th April, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports exchanged between the Government, the resident engineer and all other persons, concerning the construction and repairing done to the wharves at Ile Perrot North, South and at the Church; Village of Vaudreuil, Pointe Cavagnal, Hudson, Graham, Rigaud and Point Fortune since 1904. Also, a copy of all data and reports regarding above already produced at my request relating to documents prior to 1904, showing the amounts of money paid for such construction and repairing, and to whom paid. And also, return to an Order of the House of the 30th April, 1917, for a copy of all letters, petitions, correspondence and telegrams exchanged between the Government, the district engineer, and any other persons concerning either the construction, repairing or purchase of the wharves at Ile Perrot South, the Church in the Village of Ile Perrot, Village of Vaudreuil, Pointe Cavagnal, Hudson, Rigaud, Graham, Pointe Fortune and Ile Perrot North, since 1904. Also a copy of all specifications and reports already brought down at my request in relation to above prior to, and since 1904, giving a statement of the amounts that have been paid for such construction or repairs, showing to whom they were paid. Presented August 13, 1917.—*Mr. Boyer.*

Not printed.

123. Return to an Order of the House of the 19th April, 1916, for a copy of all letters, petitions, correspondence and telegrams exchanged between the Government, its resident engineer, and all other prsons, concerning the dredging work done at the following places:—Ste. Anne de Bellevue, Pointe Fortune, Ottawa River Channel between Ile au Foin and Ile à Paquin, Graham channel, Rigaud channel, Hudson Heights channel, Hudson, Como, Pointe Cavagnal, channel at Vaudreuil Village, Dorion Bay channel, Ile Perrot Church, Ile Perrot Sud Wharf, and Ile Perrot Nord Wharf. Also, a statement of the amounts paid to different persons, companies, etc., for such work, the dates, etc., and a copy of the estimates already brought down at my request, the whole since 1904. Presented April 30, 1917.—*Mr. Boyer*.. .. ..*Not printed.*

123a. Return to an Order of the House of the 16th February, 1916, for a copy of all letters, petitions, correspondence, telegrams and reports exchanged between the Government, the resident engineer of the district, and all other persons, concerning the dredging work done at the places below named, and the amount of money paid to divers, persons companies, etc., for such work, as well as the statements already presented at any request, the whole since 1904:—At the wharf of Ile Perrot, North, South and at the Church; in Dorion Bay channel; at Vaudreuil Village channel; at Pointe Cavagnal; at Como; at Hudson; at Hudson Heights channel; at Graham channel; in the Rigaud River channel; in the Ottawa river; Ile aux Poires channel; at Pointe Fortune, and at Ste-Anne de Bellevue channel. Presented April 30, 1917.—*Mr. Boyer*.. .. ..*Not printed.*

124. Return to an Order of the House of the 3rd May, 1916, for a copy of all letters, telegrams, bills, vouchers and memoranda in connection with the repairs to the wharf at Upper Prospect, Halifax County, N.S., in 1915. Presented April 30, 1917.—*Mr. McLean (Halifax)*.. .. ..*Not printed.*

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125. Return to an Order of the House of the 3rd May, 1916, for a copy of all letters, telegrams, bills, vouchers and memoranda in connection with the repairs to the wharf at Shad Bay, Halifax County, N.S., in 1915. Presented April 30, 1917.—*Mr. McLean (Halifax)*.. .. .. .

CONTENTS OF VOLUME 21—*Continued.*

136. Return to an Order of the House of the 23rd April, 1917, for a return showing:—1. The names, former post office addresses, occupations and salaries paid to the censors and decoders in the employ of the Government at Hazel Hill and Canso during the year 1916. 2. How much has been expended in connection with this service at Canso and Hazel Hill since the first of August, 1914, up to the present date. 3. How much has been expended in connection with the said service in embracing all the stations in the province of Nova Scotia from August 1, 1914, up to the present date. Presented May 2, 1917.—*Mr. Sinclair*.. .. .. .

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permanent and temporary civil servants and employees for the fiscal year ending March 31, 1917. 7. How many civil servants were appointed by said Department since October 10, 1911, under the provisions of Section 21 of the Civil Service Act. Presented May 31, 1917.—*Mr. Sinclair*.. .. .. .

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by said Department since 1st of August, 1914. 4. How many temporary civil servants and employees were employed by said Department since August 1, 1914, 5. What was the gross amount paid by said Department for salaries and expenses to both permanent and temporary civil servants and employees for the fiscal year ending March 31, 1914. 6. What was the gross amount paid by said Department for salaries and expenses of all permanent and temporary civil servants and employees for the fiscal year ending March 31, 1917. 7 How many civil servants were appointed by said Department since October 10, 1911, under the provisions of Section 21 of the Civil Service Act. Presented by Hon. Mr. Roche, July 10, 1917.—*Mr. Kyte*.. .. ..*Not printed.*

138*g*. Return to an Order of the House of the 23rd April, 1917, for a return showing:—1. How many permanent civil servants or officials were in the employ of the Department of Agriculture on the 10th day of October, 1911, and how many on the 31st day of March, 1917. 2. How many temporary civil servants and employees of all kinds were in the employ of the said Department on the 10th day of October, 1911, and how many on the 31st of March, 1917. 3. How many permanent civil servants or officials were appointed by said Department since the 1st of August, 1914. 4. How many temporary civil servants and employees were employed by said Department since August 1, 1914, 5. What was the gross amount paid by said Department for salaries and expenses to both permanent and temporary civil servants and employees for the fiscal year ending March 31, 1914. 6. What was the gross amount paid by said Department for salaries and expenses of all permanent and temporary civil servants and employees for the fiscal year ending March 31, 1917. 7. How many civil servants were appointed by said Department since October 10, 1911, under the provisions of Section 21 of the Civil Service Act. Presented August 15, 1917.—*Mr. Hughes (P.E.I.)*.. .. ..*Not printed.*

138*h*. Return to an Order of the House of the 2nd May, 1917, for a return showing:—1. How many permanent civil servants or officials were in the employ of the Department of State and Mines on the 10th day of October, 1911, and how many on the 31st of March, 1917. 2. How many temporary civil servants and employees of all kinds were in the employ of the said Department on the 10th day of October, 1911, and how many on the 31st of March, 1917. 3. How many permanent civil servants or officials were appointed by said Department since the 1st of August, 1914. 4. How many temporary civil servants and employees were employed by said Department since August 1, 1914, 5. What was the gross amount paid by said Department for salaries and expenses to both permanent and temporary civil servants and employees for the fiscal year ending March 31, 1911. 6. What was the gross amount paid by said Department for salaries and expenses of all permanent and temporary civil servants and employees for the fiscal year ending March 31, 1917. 7. How many civil servants were appointed by said Department since October 10, 1911, under the provisions of Section 21 of the Civil Service Act. Presented August 21, 1917.—*Mr. McKenzie*.. .. ..*Not printed.*

139. Return to an address to His Excellency the Governor General of the 23rd April, 1917, for a copy of the Order in Council and all other papers in connection with the awarding of the contract to J. C. Shields and others, or to the Inland Express Company for carrying the mails from Ashcroft to Fort George, B.C. Presented May 2, 1917.—*Mr. Turriff*.. .. ..*Not printed.*

140. Return to an Address to His Excellency the Governor General of the 31st January, 1917, for a copy of all correspondence exchanged with the Governement of the Province of Manitoba concerning a statute passed by the Legislature of Manitoba at its last session, entitled, "An Act to amend the Jury Act"; together with copies of all Orders in Council respecting same. Presented May 3, 1917.—*Sir Wilfrid Laurier*.. *Not printed*

141. Return to an Order of the House of the 7th February, 1917, for a return showing:—1. The number of interned aliens, and nationality of each, employed on public works since the 4th August, 1914. 2. The number employed in industrial work in the provinces of Canada, and the nationality of each, since the 1st of August, 1914. 3. The number so employed at the present time. Presented May 3, 1917.—*Mr. Kyte*.. .. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

142. Return to an Order of the House of the 2nd May, 1917, for a copy of the report of the Royal Commission appointed by Order in Council, 20th September, 1916, to inquire into and report upon the conditions in regard to the delivery of cargoes of coal to coasting vessels in the Maritime Provinces. Presented May 7, 1917.—*Mr. Hughes (Kings, P.E.I.)*.. .. ..*Not printed.*

143. Return to an Order of the House of the 31st January, 1917, for a return showing:—1. How many applicants for enlistment in the Canadian Overseas Forces have been rejected on account of being physically unfit. 2. How many have been discharged after enlistment for the same reason. Presented May 7, 1917.—*Mr. Steele*.. ..*Not printed.*

143*a*. Return to an Order of the House of the 30th April, 1917, for a return showing:—1. How many Americans have enrolled in Canadian Regiments since the commencement of the war. 2. How many natives of the British Isles are so enrolled in Canada since the 1st of August, 1914. Presented July 31, 1917.—*Mr. Boulay*.. .. ..*Not printed.*

143*b*. Return to an Order of the House of the 31st January, 1917, for a return showing:—1. How many men have enlisted in Canada for overseas service. 2. How many of these have been subsequently discharged as unfit. 3. How many of these were discharged in Canada, and how many overseas. Presented May 7, 1917.—*Mr. Graham*..*Not printed.*

143*c*. Return to an Order of the House of the 14th May, 1917, for a return showing:—1. Whether the Minister of Militia or any of the authorities of the Militia Department has official statistics as to the recruiting of soldiers in Canada for overseas service. 2. If so, what the correct figures are of enlistments in the different overseas regiments raised since August, 1914, to date (*a*) Canadian speaking the French language; (*b*) Canadians speaking the English language and born in Canada; (*c*) British subjects by birth born outside of Canada; (*d*) British subjects by naturalization; (*e*) British subjects by birth born outside of Canada; (*d*) British subjects by naturalization; (*e*) French Canadian soldiers in regiments commanded by officers speaking the English language raised in the province of Quebec; and (*f*) French Canadian soldiers in battalions raised in the other provinces of Canada. Presented June 14, 1917.—*Mr. Lanctôt*.. .. ..*Not printed.*

143*d*. Copy of Census Statistics showing Summary of Strength of all Units of the Canadian Expeditionary Forces in England, period 14th May, 1917, together with statement showing number of Canadian troops in France, England, in the Near East, St. Lucia and in Canada, June, 1917. Presented by Sir Edward Kemp, June 15, 1917.. ..*Not printed.*

144. P.C. 2314, dated 7th October, 1916, appointing a Special Seed Commissioner and three assistants, with authority to purchase seed wheat to fill requisitions for seed from municipal governing bodies in districts that have suffered crop failure due to the prevalence of rust and frost. Also, P.C. 3073, dated 14th December, 1916, authorizing the Special Seed Commission to purchase seed oats and seed barley to fill requisitions for seed from municipal governing bodies and farmers' organizations in districts where there is no supply. Presented by Hon. Mr. Burrell, May 8, 1917.. .. .. ..*Not printed.*

145. Return to an Order of the House of the 1st February, 1917, for a copy of all communications, reports and documents concerning the alleged treatment of Thos. Kelly, a prisoner in the Stony Mountain Penitentiary. Presented May 9, 1917.—*Mr. Buchanan.* *Not printed.*

146. Copy of Order in Council, P.C. 1183, dated 28th April, 1917, authorizing the granting, at the request of His Majesty's Government in England, of a further 300 miles of rails for use in France in connection with the war. Presented by Hon. Mr. Meighen, May 10, 1917.. .. ..*Not printed.*

146*a*. Return to an Order of the House of the 13th June, 1917, for a return showing:—1. Between what points on the Canadian Northern Railway Line west of Edmonton the rails are to be taken up to be placed on the Grand Trunk Pacific Line. 2. Between what points on the Grand Trunk Pacific Line west of Edmonton the rails of the Grand Trunk are to be replaced by rails of the Canadian Northern Railway. Presented June 14, 1917.—*Mr. Oliver*.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

146b. Tabulated statement showing list of points on the Eastern Division of the National Transcontinental Railway from which rails were lifted for shipment overseas to France, mileage lifted at each point and replaced with rails from Intercolonial Railway (together with a map accompanying same). Presented by Hon. Mr. Cochrane, June 21, 1917.. .. .. .

CONTENTS OF VOLUME 21—*Continued.*

156. Return to an Order of the House, of the 22nd March, 1916, for a Return showing:—1. The number of conductors, brakemen, drivers and firemen, respectively, who were on duty on the Canadian Government Railways between Moncton and Campbellton during the month of February, 1916. 2. The number of hours each of the above mentioned trainmen and enginemen were on duty each trip between said points during said month of February, 1916. Presented May 21, 1917.—*Mr. Copp*.. .. ..*Not printed.*

157. Report of Exchequer Court proceedings under Section 49A of the Indian Act, in respect to the removal of the Indians from Sydney Reserve, Nova Scotia. Presented by Hon Mr. Roche, May 22, 1917.. .. ..*Not printed.*

158. Report of the work of the Military Hospitals Commission from its inception to the present date. Presented by Sir Robert Borden, May 23, 1917. .. ..*Not printed.*

159. Copy of correspondence between Members of the Government and the Canadian Manufacturers Association respecting the purchase of supplies for the Canadian Expeditionary Forces in England and at the Front. Presented by Sir Robert Borden, May 23, 1917.. .. ..*Not printed.*

160. Return to an Order of the House, of the 14th May, 1917, for a copy of the correspondence between the Prime Minister and the ex-Minister of Militia and Defence, which led to the latter's resignation or dismissal from the Government. Presented by Sir Robert Borden, May 23, 1917.—*Mr. Hughes (King's, P.E.I.)*.. .. ..*Not printed.*

161. Return to an humble Address of the Senate to His Excellency the Governor General, dated the 26th day of January, 1917, for a statement showing the date and object of all commissions instituted by the Government of the day, since its accession to power in 1911, up to the present date; the number of days during which each of these commissions sat, giving the names of the individuals who formed part of such commissions, and what was the cost of each to the country. *(Senate.)*.. .. ..*Not printed.*

161*a*. Part Return to an humble Address of the Senate, dated the 7th day of February, 1917, to His Excellency the Governor General, for:—A statement showing the date, the object and the personnel of all commissions instituted by the late Government from its accession to power in 1896, up to the accession to power of the present Government in 1911, the number of days during which each of these commissions set, and what was the cost of each to the country. *(Senate.)*.. .. ..*Not printed*

162. Order in Council P.C. 1433, dated 24th May, 1917, containing regulations concerning the departure out of Canada of male persons who are liable to or capable of national service of a military or other character. Presented by Hon. Mr. Roche, May 29, 1917. *Not printed.*

163. Return to an Address to His Excellency the Governor General, of the 23rd May, 1917, for a copy of the Order in Council, if any, providing that preference in appointments to the Civil Service should be given to returned soldiers. Presented May 29, 1917.—*Mr. Boulay*.. .. ..*Not printed.*

164. Return to an Order of the House, of the 3rd February, 1917, for a copy of all reports findings, evidence, memoranda, etc., in connection with the inquiry into the damages sustained by H.M.C.S. *Grilse* en route from Halifax to Bermuda. Presented May 30, 1917.—*Mr. Maclean (Halifax.)*.. .. ..*Not printed.*

165. Return to an Order of the House, of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports in any way referring to the dismissal or retirement of D. McDermid, Superintendent of Fish Hatchery at East Margaree, and the appointment of his successor. Presented May 30, 1917.—*Mr. Chisholm.* *Not printed.*

166. Return to an Order of the House, of the 25th April, 1917, for a copy of all letters, telegrams, reports and other papers and documents relative to the application of Willis Keizer of Hall's Harbour, King's County, N.S., for a license to operate a fishing weir at Square Cove, King's County, N.S. Presented May 30, 1917.—*Mr. Maclean (Halifax)* *Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

167. Return to an Address to His Excellency the Governor General, of the 22rd April, 1917, for a copy of all correspondence, memoranda, Orders in Council, etc., in reference to the dismissal of Moses H. Nickerson, as Inspector of Life-saving Stations in Nova Scotia. Presented May 30, 1917—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

168. Copies of Pension Regulations with amendments and as amended to February 28, 1917, with copies of Orders in Council relating thereto. Presented by Sir Thomas White, May 30, 1917.. .. ..*Printed for sessional papers only.*

168a. Copy of Order in Council, P.C. 277, dated 26th January, 1917, regarding pensions of officers or their dependants in respect of the exchange of officers between the Government of Canada and the Imperial Government. Presented by Sir Edward Kemp, August 20, 1917.. .. ..*Not printed.*

169. Return to an Order of the House, of the 14th May, 1917, for a copy of all letters, correspondence, petitions, telegrams and reports between the Minister of Marine and Fisheries and any person or persons in any way referring to the removal of the salmon nets on that portion of the coast of Inverness extending east and west from the mouth of the Margaree River. Presented May 31, 1917.—*Mr. Chisholm*.. .. .. ..*Not printed.*

170. Return to an Order of the House, of the 2nd May, 1917, for a copy of the report of the Commission appointed to investigate the condition of the Military Hospital at Halifax, with a copy of the evidence taken by said Commission at Halifax and all other documents in the possession of the Department of Militia and Defence in connection with such investigation. Presented May 31, 1917.—*Mr. Sinclair*.. .. .. ..*Not printed.*

171. Return to an Order of the House, of the 7th May, 1917, for a return showing the amount paid or spent by the Department of Militia in advertising for recruits in Canada, showing the persons, firms and corporations to whom the payments were made, up to April 1, 1917. Presented May 31, 1917.—*Mr. Macdonald*.. .. .. ..*Not printed.*

172. Finding of the Court of Inquiry appointed by the Adjutant-General by Orders dated the 1st May, 1917, for the purpose of collecting and recording evidence in connection with the allegations contained in several newspapers that Troop Trains had been stoned passing through Rivière-du-Loup, Quebec, and other places, and for the purpose of collecting and recording any other evidence which, in the opinion of the Members of the Court, in any way relates to or has a bearing on this matter. Presented by Sir Edward Kemp, May 31, 1917.. .. ..*Not printed.*

173. Finding of the Court of Inquiry appointed by the Adjutant-General by Orders dated the 1st May, 1917, for the purpose of collecting and recording evidence in connection with the allegations contained in several newspapers accusing the citizens of Quebec of maltreating or allowing to be maltreated, soldiers returning from the War and passing through or sojourning in Quebec, and for the purpose of collecting and recording any other evidence which, in the opinion of the Members of the Court, in any way relates to or has a bearing on the matter. Presented by Sir Edward Kemp, May 31, 1917.. .. ..*Not printed.*

174. Return to an Order of the House, of the 7th May, 1917, for a copy of all accounts, letters, claims, correspondence and other documents relating to the following amounts mentioned in the Report of the Auditor General 1916, Vol. 11, page L—11:—Mr. Justice L. P. Pelletier, travelling expenses, $577; Mr. Justice L. N. Belleau, travelling expenses, $1,984.44; Mr. Justice T. H. Chauvin, travelling expenses, $1,421.25; Mr. Justice B. LeTellier, travelling expenses, $1,923.80. Presented May 31, 1917.—*Mr. Lanctot*.. .. ..*Not printed.*

175. Return to an Order of the House, of the 30th May, 1917, for a Return showing:—1. The number of persons appointed to permanent position on the Canadian Government Railways from January 1, 1916, to March 31, 1917, who were not previously employed on the said Railways. 2. Their names, salaries and the positions to which they were appointed. Presented May 31, 1917—*Mr. Copp*.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

176. Return to an Order of the House, of the 12th February, 1915, for a Return showing how many persons of German nationality are employed in the several Departments of the Federal Government, in what capacity and the salaries received respectively. Presented June 1, 1917.—*Mr. Delisle*.. .. ..*Not printed.*

177. Return to an Order of the House, of the 1st May, 1916, for a copy of all correspondence and papers relating to the change in the location of the post office at Rosebery, Alberta. Presented June 1, 1917.—*Mr. Buchanan*.. .. ..*Not printed.*

178. Return to an Order of the House, of the 8th May, 1916, for a copy of all correspondence, letters and telegrams relating to the dismissal of Augustin D. Lauteigne as Postmaster of Island River, Gloucester County, N.B. Presented June 1, 1917.—*Mr. Turgeon.* *Not printed.*

179. Return to an Order of the House, of the 31st January, 1917, for a copy of all letters and telegrams in the Post Office Department in reference to the removal of Pearson's Post Office, Township of Casey, in the Constituency of Nipissing, from where it was located to its present location. Presented June 1, 1917.—*Mr. Turriff*.. ..*Not printed.*

180. Return to an Order of the House, of the 5th February, 1917, for a copy of all letters, reports, papers and other documents relative to the dismissal of John R. McIntosh as Postmaster of Cummings Mountain, Pictou County, and the appointment of James Cummings as his successor. Presented June 1, 1917.—*Mr. Macdonald*.. ..*Not printed.*

181. Return to an Order of the House, of the 2nd May, 1917, for a Return showing:—The gross amount paid by the Government since October, 1911, to H. P. Duchemin, of Sydney, N.B., for services and disbursements under the Public Inquiries Act, or otherwise. Presented June 1, 1917.—*Mr. Sinclair*.. .. ..*Not printed.*

182. Return to an Order of the House, of the 3rd February, 1917, for a copy of all correspondence, letters, telegrams and other documents concerning the cancelling by the Post Office Department of the rural mail contract granted to Hyppolite Lambert of St. Antoiné, in the County of Lotbinière, Que. Presented June 1, 1917.—*Mr. Fortier.* *Not printed.*

183. Reports, pursuant to a Resolution of the House adopted on the 18th May, 1916, based on a recommendation of the Joint Committee of both Houses on Printing of Parliament, requesting information from the several Departments of Government with the view to effecting all possible economy in the matter of public printing and the distribution of public documents, and the extent, if any, to which such recommendations have been carried into effect. Presented by Hon. Mr. Patenaude, June 1, 1917.. ..*Not printed.*

184. Return to an Order of the House, of 21st May, 1917, for a copy of all correspondence, reports and recommendations, if any, from the Grain Commission to the Department of Trade and Commerce or any other Department of the Government at Ottawa, following a meeting of the Grain Commissioners held in Lethbridge this year. Presented June 1, 1917.—*Mr. Buchanan*.. .. ..*Not printed.*

185. Order in Council passed in conformity with provisions of 4-5 George V., Chapter 20, 8-15 (C. N. Railway.)—(*The Senate*).. .. ..*Not printed.*

186. Return to an Order of the House, of the 3rd February, 1917, for a return showing the quantity and value of exports in following commodities for the first nine months of present fiscal year:—Horses; brass and manufacturers of same; wheat, breadstuffs; oats and grain other than wheat; automobiles, bicycles, motorcycles and parts of same, including engines and tires; railway cars and parts; chemicals; copper and manufactures of same; cotton manufactures; explosives; iron and steel and manufactures of same; firearms and munitions; leather and manufactures of same; meat and dairy products; alcohol; vegetables, dried and canned; lead; wearing apparel of all kinds; zinc and manufactures of same; paper and manufactures of same. Presented June 4, 1917.—*Mr. Maclean (Halifax)*... .. ..*Printed for sessional papers only.*

CONTENTS OF VOLUME 21—*Continued.*

187. Return to an Order of the House, of the 30th April, 1917, for a copy of all documents, correspondence, letters, telegrams, memoranda and reports exchanged between the Sergeant-at-Arms of the House of Commons and the Honourable Albert Sévigny; the Sergeant-at-Arms and the Justice Department, and between the Department of Justice and the Honourable Albert Sévigny, concerning certain effects, furniture and ornaments connected with the Speaker's Apartments. Also, copy of all accounts, receipts, bills of lading and transportation accounts concerning the said effects, furniture and ornaments. Presented June 5, 1917.—*Mr. Lanctot*.. .. ..*Not printed.*

188. Copy of Order in Council P.C. 1457, dated the 29th May, 1917, respecting pay to members of the Civil Service who join the Military forces of Canada either by voluntary enlistment or otherwise from and after the date hereof. Presented by Sir Thomas White, June 6, 1917... .. ..*Not printed.*

189. Copy of General Reports of W. F. O'Connor, K.C., Acting Commissioner *re* Cost of Living, concerning the production, cost, selling prices, and distribution system of refined sugar. Presented by Hon. Mr. Crothers, June 6, 1917

Printed for distribution and sessional papers.

190. Copy of Reports of W. F. O'Connor, on the subject of the Anthracite Coal business in Canada. Presented by Hon. Mr. Crothers, June 6, 1917.

Printed for distribution and sessional papers.

191. Return to an humble Address of the Senate to His Excellency the Governor General, dated the 22nd of May last, showing a copy of:—All correspondence exchanged between the Government or its Ministers, the Minister of Militia, the Militia Council, Major-General F. L. Lessard, C.B., Inspector-General, or any other person, and Lieutenant-Colonel Armand Lavergne, O.C., the 61st Regiment or any other person, on the subject of the territorial defence of the Province of Quebec, as well as copy of all Orders in Council or documents relating to this subject.—(*Senate*).. .. ..*Not printed.*

192. Copy of Order in Council, P.C. 1579, dated 8th June, 1917, appointing a Fuel Controller for Canada. Presented by Sir George Foster, May 12, 1917.

Printed for sessional papers only.

192*a*. Copy of Order in Council, P.C. 1460, dated 16th June, 1917, *re* the appointment of an Officer to be known as Food Controller for Canada, and specifying his powers and duties. Presented by Sir Robert Borden, June 19, 1917.

Printed for sessional papers only.

193. Copy of Order in Council, P.C. 1604, dated 11th June, *re* the establishment of "The Board of Grain Supervisors of Canada." And also, Copy of Order in Council, P.C. 1605, dated 11th June, 1917, appointing certain persons as members of "The Board of Grain Supervisors of Canada." Presented by Sir George Foster, May 12, 1917.

Printed for sessional papers only.

194. Copies of Census Statistics of male population of Canada, Census of 1911, between the ages of 20 and 45, both years inclusive, according to conjugal condition and nativity. Presented by Sir Edward Kemp, June 13, 1917.

Printed for sessional papers only.

195. Copies of The King's Regulations and Orders for the Army, 1912, re-printed with amendments published in Army Orders up to 1st August, 1914. Presented by Sir Edward Kemp, June 13, 1917... .. ..*Not printed.*

196. Copies of Manual of Military Law, War Office, 1914. Presented Sir Edward Kemp, June 13, 1917.. .. ..*Not printed.*

197. Copy of Order in Council, P.C. 987, dated 10th April, 1917, as amended by Order in Council No. 1451, dated 25th May, 1917: Regulations, being as Consolidation of and additions to various Orders in Council made in consequence of the War, the whole to be known as the "Defence of Canada Order, 1917." Presented by Hon. Mr. Hazen, June 13, 1917... .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

198. Return to an Order of the House, of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports in any way referring to dismissal, retirement or resignation of John McDonald, as Janitor of public building at Inverness, and the appointment of his successor. Presented June 15, 1917.—*Mr. Chisholm.* *Not printed.*

199. Return to an Order of the House, of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the extension and repairs to McKay's Point Wharf, Inverness County. Presented June 15, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

200. Return to an Order of the House, of the 7th May, 1917, for a copy of the replies which the Government or the Department of Public Works sent to the Resident Engineer or other parties in answer to letters, telegrams, or reports in connection with the breakwater at Souris, P.E.I., during the years 1915 and 1916. Presented June 15, 1917.—*Mr. Hughes (King's, P.E.I.)*.. .. ..*Not printed.*

201. Return to an Order of the House, of the 23rd May, 1917, for a copy of all correspondence, telegrams, recommendations and other communications relating to the dismissal of Hector Urquhart, as lineman on the Dominion Government telegraph line between Grand River and Enon, Cape Breton County, Nova Scotia, and relating to the appointment of Dan. A. McLennan to said position. Presented June 15, 1917.—*Mr. Kyte*.. .. ..*Not printed.*

202. Return to an Order of the House, of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the extension and repairs to Craignish Wharf. Presented June 15, 1917.—*Mr. Chisholm*..*Not printed.*

203. Return to an Order of the House, of the 3rd May, 1917, for a Return showing:—1. The amount which has been paid for stenographic reporting for the different Commissions or inquiries which have been held by the Government since November, 1911, to the present time. 2. The names of the persons to whom these amounts have been paid for stenography and the respective amounts paid to each of them. Presented June 15, 1917.—*Mr. Verville*.. .. ..*Not printed.*

203*a*. Return to an Order of the House, of the 3rd May, 1917, for a Return showing:—1. The amount which has been paid for stenographic reporting for the different Commissions or inquiries which have been held by the Government since November, 1911, to the present time. 2. The names of the persons to whom these amounts have been paid for stenography and the respective amounts paid to each of them. Presented June 28, 1917.—*Mr. Verville*.. .. ..*Not printed.*

204. Return to an Address to His Excellency the Governor General, of the 9th May, 1917, for a copy of all papers, petitions, telegrams and all other documents sent to the Government urging upon them the necessity of abolishing the wet canteen system in the camps overseas. Presented June 15, 1917.—*Mr. Lemieux*.. .. ..*Not printed.*

205. Copies of all correspondence, memoranda or other documents received by or sent by the Right Honourable the Prime Minister and the Honourable the Minister of Trade and Commerce, concerning a project to advertise Canadian products by the organization of an exhibition train of sample goods in France. (*Senate*)... .. ..*Not printed.*

205*a*. Supplementary Return to an Order of the Senate, dated the 7th June last, for a Return showing:—Copies of all correspondence, memoranda or other documents received by or sent by the Right Honourable the Prime Minister and the Honourable the Minister of Trade and Commerce, concerning a project to advertise Canadian products by the organization of an exhibition train of sample goods in France. *The Senate*.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

206. Letter of the Honourable E. L. Patenaude, M.P., to the Right Honourable the Prime Minister, resigning his position as Secretary of State for Canada, and the letter of the Prime Minister in acknowledgment thereof. Presented by Sir Robert Borden, June 18, 1917.. .. .. .

CONTENTS OF VOLUME 21—*Continued.*

of Alberta, and the officials of the Alberta and Eastern British Columbia Coal Operators' Association, concerning the requests made by the Miners for an increase in wages due to the increase in the cost of living, between September 1, 1916, and the present time. Presented July 12, 1917.—*Mr. Buchanan*.. .. ..*Not printed.*

213. Return to an Order of the House, of the 13th June, 1917, for a Return showing:—1. How many battalions of infantry left Canada with the First Contingent? 2. The number, and the designations of the different units of artillery which left with the First Contingent? 3. The number and the designation of the different medical corps which left Canada with the First Contingent? 4. The number and the designation of all the other units which left with the First Contingent? 5. The names, rank and duties of the supernumerary officers who left with the First Contingent. Presented June 26, 1917.—*Mr. Lachanec*.. .. ..*Not printed.*

214. Return to an Address to His Excellency the Governor General, of the 30th May, 1917, for a copy of all correspondence, letters, cables and other documents exchanged between the Imperial Government or any of its members or officials with the Canadian Government or any of its members or officials, relative to the question of the proposed legislation by the Imperial Parliament to validate certain Acts and proceedings of the Legislature of British Columbia. Presented June 27, 1917.—*Mr. Macdonald*.. .. ..*Not printed.*

215. Return to an Order of the House, of the 4th June, 1917, for a copy of all correspondence between the Chief of the *Hansard* Translation Staff of the House, the Clerk of the House and the Speaker, since April 19, 1917, to date. Presented June 28, 1917.—*Mr. Lemieux*.. .. ..*Not printed.*

216. Return to an Order of the House, of the 27th March, 1916, for a return showing the amounts paid by the Federal Government from the 1st July, 1896, to the 1st October, 1911, to the following newspapers: Le *Canada, La Presse, La Patrie, Le Pays*, of Montreal, *La Vigie* and *Le Soleil*, of Quebec. Presented June 28, 1917.—*Mr. Boulay*.. .. ..*Not printed.*

217. Return to an Order of the House, of the 3rd May, 1917, for a Return showing the number of employees of the following Departments after 1896, and after 1911, respectively, viz.:—Inland Revenue, Interior, Public Works, Marine and Fisheries, Militia and Defence, Labour and Department of Trade and Commerce. Presented June 28, 1917.—*Mr. Boulay*.. .. ..*Not printed.*

218. Return to an Order of the House, of the 7th May, 1917, for a Return showing the number of returned soldiers who have been given employment in the various departments of the Government. Presented June 28, 1917.—*Mr. Lemieux*.. ..*Not printed.*

219. Return to an Order of the House, of the 25th June, 1917, for a copy of the reports made by the Penitentiary Surgeons in connection with the release from Penitentiary of Edward Levi Baugh. Presented July 4, 1917.—*Mr. Murphy*.. .. ..*Not printed.*

220. Return to an Order of the House, of the 21st May, 1917, for a return giving the names and salaries of employees of the Interior and Indian Departments, (*a*) Inside Service and (*b*) Outside Service, who volunteered for overseas service, and who were paid their full civil salary in addition to their military pay and allowances.

Those who volunteered for overseas service and who were paid a sufficient portion of their civil salary in addition to their military pay and allowances to bring their pay up to the amount of their civil salary.

Those who volunteered for overseas service and who received consideration (stating consideration) on account of their civil employment in addition to their military pay and allowances.

Those who volunteered for overseas service and who do not receive any consideration on account of their civil employment in addition to their military pay and allowances. Presented July 5, 1917.—*Mr. Oliver*.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

221. Report of Special Trade Commission to Great Britain, France and Italy, May-September, 1916. Presented by Sir George Foster, July 5, 1917... ..*Not printed.*

222. Return to an Order of the House, of the 13th June, 1917, for a Return showing:—1. The total expenditure connected with Agriculture by the Federal Government in each of the fiscal years from 1904-05 to 1916-17, inclusive. 2. How much money was set apart by the Agricultural Aid Act of 1912 to assist the Provincial Departments of Agriculture to improve and extend their work? 3. How much of above amount was given to each Province, and what was accomplished in each Province as a result of such assistance? 4. How much money was set apart by the Federal Government under the Agricultural Instructions Act of 1913, and under the provisions of the said Act what amounts were respectively allotted each year to the several Provinces? 5. What the general purpose of said Act is, and to what extent that purpose has been made effective in each Province. Presented July 5, 1917.—*Mr. Edwards.*
Printed for sessional papers only.

223. Return to an Order of the House, of the 11th June, 1917, for a Return showing:—1. Whether Mr. Giard, ex-M.P.P. for Compton, is an employee of the Government? 2. If so, since when? 3. The number of employees under his orders and their respective names? 4. What salary does said Giard receive? 5. The salary of each employee under his charge? 6. Whether he has bought, for the Government, any animals for breeding purposes? 7. If so, how many, and the price paid for each? 8. Where these animals were bought? 9. How many of them have been rejected or returned to the Government or to Mr. Giard? 10. If any have been refused or returned, why? 11. Where the said breeding animals are at present? 12. What the Government or the Department of Agriculture intends to do with the animals so refused and returned to Mr. Giard? Presented July 5, 1917.—*Mr. Gauvreau* *Not printed.*

224. Return to an Address to His Excellency the Governor General, of the 31st January, 1917, for a copy of all documents, letters, messages, correspondence, reports and particularly an Order in Council dated 6th December, 1898, respecting the exemption from military service of the Doukhobors. Presented by Hon. Mr. Roche, July 9, 1917. —*Mr. McCraney*.. .. ..*Not printed.*

225. Return to an Address to His Excellency the Governor General, of the 31st January, 1917, for a copy of all Orders in Council and other documents on file in the Department of Marine and Fisheries relating to the requisitioning of Canadian ships by the Canadian Government. Presented July 11, 1917.—*Mr. Sinclair*.. .. .. ..*Not printed.*

226. Return to an Order of the House of the 7th June, 1917, for a return showing the number of recruiting officers which have been appointed in the province of Quebec, with the names, addresses, nature of functions and salaries of the same. Presented July 11, 1917.—*Mr. Carvell*.. .. ..*Not printed.*

226*a*. Return to an Order of the House of the 18th June, 1917, for a return showing:—1. The names and addresses of the parties on Prince Edward Island who have been engaged or who are now engaged in recruiting for the army and navy or doing other work of a like military character, since August, 1914. 2. The remuneration or pay each of the said parties receives and the allowance given for travelling or other expenses. 3. The total amount each person has received up to the 1st of June, 1917. Presented July 31, 1917.—*Mr. Hughes (P.E.I.)*.. .. ..*Not printed.*

227. Return to an Order of the House of the 12th April, 1916, for a return showing:—1. How many clerks there are in the Post Office Department who belong to and are paid from the outside service vote, and who work in the inside service. 2. The names of said clerks 3. Salary paid to each. 4. How long each has been in the service of the Department. 5. If all or any of the clerks have passed any examination. If so, what examination, and on what date or dates. Presented July 14.—*Mr. Turriff*..*Not printed.*

228. Copy of a memorandum presented by the Southern Slav Committee to the representatives of the British Dominions, setting forth the aims and aspirations of the Jugo-slavs (Serbs, Croats and Slovens) subject to Austro-Hungarian rule. Presented by Sir Robert Borden, July 20, 1917.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

229. Claims made by Minister of Justice relating to payment of duties by certain provinces. (*Senate.*).. .. .. .

CONTENTS OF VOLUME 21—*Continued.*

235. Return to an Order of the House of the 20th June, 1917, for a return showing:—1. The names of the members of the military staff at North Vancouver. 2. Their respective duties or occupations. 3. The rank and rate of pay of each. 4. The amount that has been paid to each. 5. Upon what date or dates the members of the said staff enlisted, and how long they have been attached to the staff. Presented July 31, 1917.—*Mr. Murphy*.. .. .. .

CONTENTS OF VOLUME 21—*Continued.*

240. Return to an Order of the House of the 13th June, 1917, for a statement showing the travelling expenses of Maurice LeBlanc, general foreman of the Department of Public Works, Bonaventure County, since his appointment to date. Presented August 8, 1917. —*Mr. Marcil (Bonaventure)*.. .. ..*Not printed.*

241. Return to an Order of the House of the 30th April, 1917, for a copy of all letters, petitions, correspondence and telegrams exchanged between the Government, the resident engineer and all other persons concerning the dredging work done at Ste. Anne de Bellevue, Pointe Fortune, Ottawa River channel between Ile au Foin and Ile Paquin, Graham channel, Rigaud channel, Hudson Heights channel, Ile Perrot Church, Ile Perrot South wharf and, Ile Perrot North wharf, since 1904. Also a statement showing the amounts paid to different persons or companies for such work, giving the dates of payment, along with a copy of the estimates already brought down at my request regarding the above, previous to 1904. Return to an Order of the House of the 30th April, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports exchanged between the Government, the resident engineer of the district, and all other persons, concerning the dredging work done since 1904 at the wharf of Ile Perrot North, South and the Church, Dorion Bay channel, Vaudreuil Village channel, Pointe Cavagnal, Como, Hudson Heights channel, Graham channel, Rigaud River channel, Ottawa River, Iles aux Poires channel, Pointe Fortune and Ste. Anne de Bellevue channel. Also a statement showing the amount of money paid to divers persons, companies, etc., for such works, along with copy of statements already presented at my request in connection with the same work, previous to 1904. Presented August 8, 1917. —*Mr. Boyer*.. .. ..*Not printed.*

242 Return to an Order of the House of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the extension and repairs to Finlay Point wharf. Presented August 8, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

243. Return to an Order of the House of the 30th April, 1917, for a copy of all correspondence in the possession of the Department of Public Works bearing date after September 1, 1915, relating to wharves, breakwaters and other public works situate in the County of Antigonish, Nova Scotia. Presented August 8, 1917.—*Mr. Sinclair*.. .. .. ..*Not printed.*

244. Return to an Order of the House of the 7th May, 1917, for a copy of all documents, correspondence, reports, accounts, pay-lists, etc., in connection with the work done on the Government wharves at Cross Point, Miguasha, St. Omer and New Carlisle, Quebec, since 1912. Presented August 8, 1917.—*Mr. Marcil (Bonaventure)*... ..*Not printed.*

245. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the wharf at Marble Mountain. Presented August 13, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

246. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the extension of the pier at Margaree Harbour. Presented August 13, 1917.—*Mr. Chisholm*.. .. .. ..*Not printed.*

246*a*. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the breakwater at Margaree Harbour. Presented August 13, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

247. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the Port Hood wharf. Presented August 13, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

248. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present time, in any way referring to the opening of Inverness Harbour. Presented August 13, 1917.—*Mr. Chisholm*.. .. ..*Not printed*

249. Return to an Order of the House of the 23rd April, 1917, for a copy of all papers, documents, petitions, memoranda, correspondence, etc., with reference to the Government of the Dominion of Canada building competing telephone lines in British Columbia paralleling lines already in operation of the Okanagan Telephone Company, Limited. Presented August 13, 1917.—*Mr. Carvell*.. .. ..*Not printed.*

250. Return to an Order of the House of the 30th April, 1917, for a copy of all correspondence in the Department of Public Works bearing date after September 1, 1915, relating to wharves, breakwaters and other public works in the County of Guysborough, Nova Scotia. Presented August 13, 1917.—*Mr. Sinclair*.. .. ..*Not printed.*

251. Return to an Order of the House of the 30th April, 1917, for a copy of all papers, records and other documents concerning the reference by the Dominion Government to the question relating to the exclusive right of fishing in the tidal waters of the province of Quebec. Presented August 15, 1917.—*Mr. Lemieux*.. .. ..*Not printed.*

252. Return to an Order of the House of the 9th July, 1917, for a return showing the names of all persons employed in connection with the Office of the Commissioner of Live Stock in the Province of Saskatchewan, showing the salaries and expenses paid them: and also showing the number of stallions and bulls placed in Saskatchewan when the said office was established. Presented August 15, 1917.—*Mr. Thomson (Qu'Appelle).*
Not printed.

253. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, telegrams and reports between the Department of the Naval Service of the Department of Marine and Fisheries, and any and all persons in connection with the seizure of certain fishery boats, fishing tackle and equipment being used in the illegal fishing of lobsters in the Straits of Northumberland in the fall of 1916, together with a copy of the evidence taken before one M. G. Teed, Esquire, acting as a commissioner to inquire into this matter, and his report and finding thereon. Presented August 16, 1917.—*Mr. Copp.*
Not printed.

254. Return to an Order of the House of the 30th July, 1917, for a copy of all correspondence between the Department of Militia and Defence of Canada, the War Purchasing Commission of Canada, and the British War Office, concerning a target practice rod or the use of same by the Canadian Expeditionary Force. Presented August 20, 1917.—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

255. Return to an Order of the House of the 7th June, 1917, for a return showing:—1. Whether the Department of Agriculture supply thoroughbred bulls for improvement of stock to applicants for the same. 2. If so, if any such bulls have been sent into the County of Dorchester, Quebec, and when. 3. At whose request these bulls were sent, and if they belonged to the Department of Agriculture. 4. If so, on what condition they were supplied. 5. From whom the department purchased the animals referred to. 6. The price paid. 7. If any official of the Department of Agriculture has made an investigation as to where these bulls are at the present time. 8. If so, the substance of their report. 9. Whether the said bulls are being used for the purpose for which they were intended. Presented August 21, 1917.—*Mr. Lanctôt*.. .. ..*Not printed.*

256. Return to an Order of the House of the 1st August, 1917, for a return showing the amount which has been paid to the Sydney *Daily Post*, newspaper, by all the departments of the Government for printing and advertising, since the 1st of November, 1911. Presented August 21, 1917.—*Mr. Kyte*.. .. ..*Not printed.*

257. Return to an Order of the House of the 1st August, 1917, for a return showing the gross amount paid to the Halifax *Herald*, the *Evening Mail*, Halifax, and the Royal Print and Lithographing Company, Halifax, by all the departments of the Government for printing, advertising and all other services since November 1, 1911. Presented August 21, 1917.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

258. Return to an Order of the House of the 18th June, 1917, for a copy of all accounts, papers, claims and correspondence regarding demands put forward by all persons who have claimed to have sustained loss or damage by the fire in the Parliament Buildings in February, 1916. Presented August 21, 1917.—*Mr. Lanctôt*.. .. ..*Not printed.*

259. Return to an Order of the House of the 14th May, 1917, for a copy of all communications, letters, reports, petitions and other documents on behalf of the Physicians and Medical Associations of this country, asking for the repeal of The Proprietary or Patent Medicine Act and the presentation of a new Act on the matter in order to render more efficient the control of these medicine preparations, and to add on the prohibition list such drugs or medicines as are generally dangerous to health and conducive to certain criminal practices. Presented August 21, 1917.—*Mr. Lapointe (Kamouraska).*
Not printed.

260. Copy of correspondence between the Honourable Robert Rogers and the Right Honourable Sir Robert Borden, Prime Minister, with reference to the resignation of the former as Minister of Public Works of Canada.—(*The Senate.*).. .. ..*Not printed.*

261. Return to an Order of the Senate dated the 11th day of July, 1917, for a Statement showing the number of officers and men of the Canadian Expeditionary Force who have been classed as unfit for military service; whether the military authorities have given consideration to the possibility of utilizing the services of those men in a secondary capacity; whether those who have been classed as unfit continue to draw military pay; the number who have deserted from the various units between 1st October, 1914, and 1st June, 1917; and the number discharged from the various units since 1st October, 1914.—(*The Senate.*).. .. ..*Not printed.*

262. Return to an Order of the Senate, dated 7th June last, for a return showing:—1. The name and rank of each person who at the outbreak of the war in August, 1914, was an officer, commissioned or provisional, of the 78th Regiment (Highlanders), of Pictou County, Nova Scotia. 2. The length of time each of such persons was attached to said regiment. 3. (*a*) The name of each of said officers who joined the Canadian Overseas Forces. (*b*) The unit to which he was attached. (*c*) The rank with which he was attached. (*d*) The date at which he was attached. 4. The name of each person who since the outbreak of war became attached as provisional officers to said 78th Regiment and the date at which such person became attached and his rank. 5. (*a*) The name of each of the officers referred to in paragraph 4 who joined the Canadian overseas forces. (*b*) The unit to which he was attached. (*c*) The rank with which he was attached. (*d*) The date at which he was attached. 6. The name of each of the officers referred to in each of the foregoing paragraphs who were in active service at the fighting front, the units with which they served, and the length of time they served. 7. Particulars as to each of the said officers showing where each one was on May 1, 1917, to what unit he was attached, and what his rank was at that time. 8. If any of these officers have gone to the fighting front since May 1, state name, unit, rank and date.—(*The Senate.*)
Not printed.

263. Part return to an humble Address of the Senate to His Excellency the Governor General, dated the 8th instant, showing all the correspondence between the Department of Militia and Defence and Clarence J. McCuaig; also, between the same and the first Purchasing Committee appointed by Sir Robert Borden, of which the Honourable Robert Rogers was Chairman, and between the said Clarence J. McCuaig and the Committee of which the Honourable Sir Edward Kemp is or was Chairman, or with any of the members of the said committee.—(*The Senate.*).. .. ..*Not printed.*

264. Eighth Annual Report of the Commission of Conservation for the fiscal year ending 31st March, 1917. Presented by Hon. Mr. Burrell, September 1, 1917.. .. .. ..*Not printed.*

265. Return to an Order of the House of the 30th August, 1917, for a return showing:—1. The number of additional buildings and offices that have been rented by the various departments of the Government in the City of Ottawa during the calendar years, 1914, 1915, 1916 and 1917. 2. The names of the lessors, the length of the lease and the respective rentals of said buildings. 3. What department in each case is occupying said premises. Presented September 3, 1917.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Continued.*

266. Return to an Order of the House of the 11th July, 1917, fo a copy of all correspondence and other documents relating to the granting to beam trawlers registered in the United States the privilege of using ports in the Province of Nova Scotia for the purchasing of supplies, the shipping of men, etc., without license therefor as required under the modus videndi. Presented September 3, 1917.—*Mr. Kyte*.. .. .. *Not printed.*

267. Copy of contract dated 8th March, 1917, between His Majesty the King and Wallace Shipyards, Limited, for the construction and delivery of one wooden auxiliary sailing ship. Also,—Copy of contract dated 1st June, 1917, between His Majesty the King and Lamond and Harrison for the construction and delivery of one wooden auxiliary sailing ship. Presented by Hon. Mr. Cochrane, September 3, 1917.. .. ..*Not printed.*

268. Return to an Order of the Senate, dated the 15th day of June last, for a return made to an Order of the House of Commons, of the 7th February, 1916, for a copy of all correspondence and reports on the claims of Sealers of British Columbia under the last treaty with the American Republic, and all papers connected therewith.—(*The Senate.*) *Not printed.*

269. Copy of Order in Council, P.C. 2245, dated 3rd September, 1917, appointing the Deputy Minister of Justice, Oliver Mowat Biggar, of the City of Edmonton, John H. Moss, of the City of Toronto, Louis Loranger, of the City of Montreal, and Lt.-Col. H. A. C. Machin, of the Town of Kenora, Ont., a council to advise and assist in the administration and enforcement of the Military Service Act, 1917, to be known as the Military Service Council. Presented by Sir Robert Borden, September 4, 1917.. ..*Not printed.*

270. Return to an Order of the House of the 21st May, 1917, for a copy of all reports, letters, telegrams, correspondence and any other papers in connection with the question of locating the 210th Battalion at Regina and Moosejaw respectively during the winter of 1916-17. Presented September 6, 1917.—*Mr. Knowles*.. .. . .*Not printed.*

271. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the appointment of a man in charge of the storm signals at Grand Etang and Margaree Harbour. Presented September 6, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

272. Return to an Order of the House of the 7th May, 1917, for a return showing the different rural mail routes established in the constituency of Qu'Appelle since the 1st day of January, 1916, showing their location and date of establishment. Also, a list of all rural mail routes now being established or under consideration at the present time in the same constituency. Presented September 7, 1917.—*Mr. Thomson (Qu'Appelle).* *Not printed.*

273. Return to an Order of the House of the 6th March, 1916, for a copy of all telegrams, letters, petitions and documents of all kinds in any way referring to the change in the Inverness-Margaree mail route from the west to the east of the Margaree river, from a point at Margaree Forks to Chapel Bridge. Presented September 7, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

274. Copy of Order in Council, P.C. 2199, dated 10th August, 1917: Rules and Regulations enacted in lieu of the Classification, Rules and Regulations contained in Order in Council, P.C. 1296, of the 15th May, 1917, in respect to War badges for members of the Canadian Expeditionary Force. Presented by Sir Edward Kemp, September 13, 1917. *Not printed.*

275. Copy of Order in Council, P.C. 2552, dated 13th September, 1917, recommending that Certificates of Naturalization may be issued under the Naturalization Act, 1914, to alien enemies who have resided for many years in Canada, on its being shown that they are clearly in sympathy with the United Kingdom and its allies in the present war, and that they have no pro-German or other alien enemy affiliations or connections. Presented by Sir Robert Borden, September 14, 1917.. .. ..*Not printed.*

CONTENTS OF VOLUME 21—*Concluded.*

276. Copy of *Canada Gazette* dated 12th September, 1917, containing a list and location of Local Tribunals established to hear and decide applications for certificates of exemption from Military Service. Presented by Hon. Mr. Doherty, September 14, 1917.
Not printed.

277. Copies of Orders in Council, dated 15th September and 17th September, 1917, respectively, appointing Registrars for the Provinces of British Columbia, New Brunswick, Quebec, Saskatchewan, Manitoba, Ontario, Alberta and Prince Edward Island, under the provisions and for the purposes of the Military Service Act, 1917. Presented by Sir Robert Borden, September 17, 1917.. .. ..*Not printed.*

278. Return to an Address to His Excellency the Governor General of the 2nd May, 1917, for a copy of all Orders in Council, letters, telegrams, etc., to or from any employee of the Government in reference to the improvement and equipment of the life-saving station at Whitehead, Guysborough County, N.S. Presented September 17, 1917.—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

279. Return to an Order of the House of the 14th May, 1917, for a copy of all letters, petitions, correspondence, telegrams and reports received by the Government since September, 1911, to the present day, in any way referring to the dredging and building of piers at Mabou Harbour. Presented September 19, 1917.—*Mr. Maclean (Halifax).*
Not printed.

280. Return to an Order of the House of the 13th August, 1917, for a return showing:—1. The different amounts paid for commissions and expenses in connection with the flotation of the different loans made by Canada since 1914. 2. The respective amounts paid in connection with each loan. Presented September 19, 1917—*Mr. Macdonald.*
Not printed.

281. Return to an Order of the House of the 5th September, 1917, for a copy of all correspondence, letters, telegrams, petitions, etc., in any way referring to an application for a public wharf at Chimney Corners, Inverness County, N.S. Presented September 19, 1917.—*Mr. Chisholm*.. .. ..*Not printed.*

282. Return to an Order of the House of the 29th August, 1917, for a return showing copies of all accounts, memoranda, vouchers, telegrams, letters, etc,, in reference to payments to George H. Boyce, of Windsor, N.S., District Foreman of Public Works Department, since his appointment to office. Presented September 19, 1917.—*Mr. Maclean (Halifax).*
Not printed.

283. Return to an Order of the Senate dated the 1st day of March, 1916, showing a copy of all correspondence between the Government and the British Columbia Boards of Trade, and also between the Government and the Canadian Manufacturers' Association, in reference to the request made by the British Columbia Boards of Trade for the appointment of a Dominion Customs Officer at the Port of New York.—(*Senate.*).
Not printed.

284. Part return to an humble Address of the Senate, dated the 14th of August, 1917, to His Excellency the Governor General, for a return showing the name of every judge of the Supreme, District and County Courts in all the provinces of Canada, for the year 1916, together with a statement of the moneys paid to each of such judges for that year for (*a*) salaries; (*b*) travelling expenses; (*c*) allowances of all kinds; (*d*) for services as Commissioners; (*e*) and any other payments; and also, showing the names of judges who have performed services as Commissioners, or in any other public capacity without compensation.—(*Senate.*).. .. ..*Not printed.*

285. Return to an humble Address of the Senate, dated the 9th August, 1917, to His Excellency the Governor General, showing all the documents relating to the purchase by the Militia Department of "Bonnie Bel Air" from W. T. Rodden, Esq., a part of number nine (9) on the official plan and book of reference of the Parish of Lachine and specially the report of the lawyers who examined the titles.—(*Senate.*).. ..*Not printed.*

REPORT

OF THE

DEPARTMENT OF THE NAVAL SERVICE

FOR THE

FISCAL YEAR ENDING MARCH 31, 1916

PRINTED BY ORDER OF PARLIAMENT.

OTTAWA
PRINTED BY J. DE L. TACHÉ,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1916

[No. 38—1917]

To Field Marshal, His Royal Highness Prince Arthur William Patrick Albert, Duke of Connaught and of Strathearn, K.G., K.T., K.P., etc., etc., etc., etc., Governor General and Commander in Chief of the Dominion of Canada.

May it Please your Royal Highness:

I have the honour to submit herewith for the information of Your Royal Highness and the Parliament of Canada, the Sixth Annual Report of the Department of the Naval Service, being for the year ended March 31, 1916, except the Fisheries Branch, reported in a separate publication.

I have the honour to be,
Your Royal Highness's most obedient servant,

J. D. HAZEN,
Minister of the Naval Service.

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REPORT

OF THE

DEPARTMENT OF THE NAVAL SERVICE

FOR THE

FISCAL YEAR ENDING MARCH 31, 1916

Ottawa, June 23, 1916.

Honourable J. D. Hazen,
Minister of the Naval Service,
Ottawa, Ont.

Sir,—I have the honour to report on the Department of the Naval Service for the year ending March 31, 1916, under the following headings:—

1. Naval Service.
2. Stores.
3. Fisheries Protection.
4. Survey of Tides and Currents.
5. Hydrographic Survey.
6. Canadian Arctic Expedition.
7. Life Saving Service.
8. Radio Telegraphs.

I.—NAVAL SERVICE.

H.M.C. NAVY.

During the past year the requisite number of the personnel for manning H.M.C. Ships and Establishments has been maintained by the entry of men with previous naval experience and by the employment of R.N.C.V.R. officers and men.

H.M.C.S. *Niobe* was employed, under the command of the Rear Admiral Commanding, North American Station, until September, 1915, when, owing to the very considerable amount of almost continual steaming that she had done since the outbreak of the war, it was considered that the general state of the machinery and boilers would not warrant her continuance of this duty. As a depot ship was

urgently needed at Halifax to accommodate numerous drafts of men, and as a parent ship for the vessels employed on patrol work and other operations on the Atlantic coast was urgently required it was decided to pay the *Niobe* off and recommission her for the purposes indicated. Throughout the remainder of the year she proved suitable for her new functions, and of considerable utility both in connection with the Canadian and the Imperial services.

H.M.C.S. *Rainbow* has been continuously employed on the Pacific Coast patrol and other important duties, under the orders of the Imperial Senior Naval Officer at Esquimalt.

Submarines *C. C. I.* and *C. C. II.* and their parent ship, H.M.C.S. *Shearwater* (Submarine Depot) have been continuously employed in connection with the defence scheme of the Pacific coast.

A large number of other vessels, both governmental and private, have been utilized in connection with the defence of the coasts, on such duties as examination service, mine sweeping, patrol and other necessary work.

The Naval Volunteers, which were established just prior to the outbreak of the war, developed largely in the West, where some 400 officers and men are enrolled. A considerable number of these volunteers have served continuously in the *Rainbow* and in other vessels based on Esquimalt since the outbreak of the war. Their services are also being utilized in the various services on the Atlantic coast.

RECRUITING—ADMIRALTY.

In April, 1915, the Admiralty requested the department to select men to be trained as pilots for the Royal Naval Air Service. The department received hundreds of applications for entry from all parts of the Dominion. These applications were given individual attention and likely candidates were interviewed and medically examined. All those accepted were sent to private flying schools to obtain their Aero Club certificates, and upon obtaining them were sent to England. Although the number originally called for by the Admiralty was twice increased, the department was able to obtain the necessary number of suitable candidates, the majority of whom have already obtained their Aero Club certificates and been sent to England. The total number accepted during the year is two hundred and fifty.

The department has recently been requested by the Admiralty to ascertain what men could be entered for the Auxiliary Patrol (Motor Boat) Service. Several hundred applications have been received, and these have been classified, pending the arrival of the recruiting committee from England, who will take up the work of examining the applicants and making final selections.

NAVAL INTELLIGENCE BRANCH.

The duties and work carried out by the Naval Intelligence Branch of the department have increased considerably in magnitude and importance and have been performed in a very satisfactory manner during the past year.

NAVAL DOCKYARDS.

With respect to the Naval Dockyards, both establishments have been worked to the full output, a considerable amount of overtime having been worked. The nature of the work done has been practically all repairs.

Halifax is being used as the base for vessels of the North Atlantic fleet which has been lately strengthened; the dockyard is being used for carrying out repairs to these vessels and keeping them in going order. No. 4 jetty has been repaired and lengthened so that it will now accommodate large ships. A contract has been placed for a 30-ton steam wharf crane for use on this jetty with a view to having available suitable lifting appliance for hoisting out damaged parts of warships should the necessity arise. The *Niobe* has been fitted up as a very efficient receiving ship.

At Esquimalt yard the expenditure and personnel have risen correspondingly, and work has been carried out on Imperial and Allied vessels, as well as those of the Canadian Service. The total amount of money paid per month in wages for the two yards is approximately 300 per cent more than that customary to be paid for the same period prior to the war.

In addition to the repairs to the vessels of the fighting fleet, the dockyards are carrying out the large number of small items of repairs needed to the various vessels now employed for auxiliary purposes for patrol and other defensive work of the coasts.

Having regard to the facilities available, this work has been carried out satisfactorily. Considerable overtime has been necessary in order to expedite the completion of the repairs.

Subsidiary work in the nature of repairs and refits of the various vessels belonging to the different branches of the Naval Service have been undertaken during the year, and repairs of vessels of other departments of the Government have also been effected. Repairs to buildings and plant incidental to the upkeep of the establishment in accordance with conditions of transfer have also been completed.

The officers and staff of the dockyards have carried out their duties in a zealous and conscientious manner, which has enabled the urgent work necessary in these yards during the period of the war to be satisfactorily and expeditiously completed.

ROYAL NAVAL COLLEGE.

The Officers of the Royal Naval College continue to report most favourably on the cadets, both as to their mental and physical progress during the past year.

The midshipmen who have been serving in ships of the Royal Navy and Royal Canadian Navy have also been favourably reported upon and have proved themselves capable and efficient. Fourteen midshipmen, who entered the college in January, 1911, were promoted to the rank of Acting Sub-Lieutenant on December 1, 1915. Two of these officers are now serving in the British Submarine Service, and four Lieutenants and five Engineer Lieutenants are serving in vessels of the Grand Fleet.

An examination for the entry of cadets to the college was held in May, 1915, and out of eight candidates six were entered.

The report of Vice-Admiral C. E. Kingsmill on the Naval Service may be found at page 28.

II.—STORES BRANCH.

The Stores Branch of the Department of the Naval Service is divided into three sections as follows:—Purchasing and Contract section, Stores section, Transport section.

PURCHASING AND CONTRACT SECTION.

The Purchasing and Contract section has in its charge all purchases and contracts, including chartering of vessels, contracts for the erection of buildings and all installations in connection therewith, victualling of ships' crews not victualled by the department, and the purchase of all necessary stores and supplies of every description; not only the Naval Service proper but all the other branches of this Department are served.

In order to carry out the work in an efficient manner, an estimate of the requirements for the year is made out by each Ship and Establishment at the beginning of the year, and a stock adequate to meet the requirements is stored at Halifax and Esquimalt; supplementary requisitions are then filled in through the year as required.

It is the duty of the Purchasing and Contract section to call for tenders for all supplies necessary to keep up these stores. During the past year all the supplies requisite were obtained by this branch, those embodying small amounts being purchased locally where required. All ordnance stores and ammunition were procured from the Imperial Government.

During the past year purchases to the extent of $2,485,269 were made, of which Naval stores, including coal both for the Canadian and the Imperial ships and transports, amounted to $1,913,766.

STORES SECTION.

The activities of the Stores section depends largely upon the demand for supplies. It is the duty of this branch to ascertain that the supplies on hand are up to requirements and that a shortage therein does not occur.

The Stores section attends to supplies not only for the ships of the Naval Service but also for nine ships of the Fisheries Protection Service, Fisheries Patrol boats, six Hydrographic Survey vessels, Royal Naval Canadian Volunteer Reserve, Radiotelegraph service, Life-saving service, fish hatcheries and other fishery establishments throughout the Dominion.

The requirements for Naval purposes have increased greatly since the beginning of the war, particularly in supplies for the dockyards, where manufacture and repair work is being carried on continuously.

In addition to the above, this section also provides to a large extent for the Imperial ships stationed on Halifax and Esquimalt and for transports.

Supply depots are maintained at both Halifax and Esquimalt dockyards. Experienced store officers supervise the work and are responsible to headquarters for the proper carrying out of their duties.

As large reserves of stores are necessary in order to meet requirements of ships and establishments at the present time, it was necessary during the past year to increase the amount of stores on hand. At the commencement of the year the value

of stores at Halifax was $376,000, and at the end of the year the stores totalled in value $504,763. At Esquimalt $280,000 worth of stock was on hand at the beginning of the year, and $298,532 worth at the end of the year.

At the commencement of the year, requisitions are prepared by the Store officers covering, as far as possible, all the requirements for the maintenance of reserve supplies during the year. Supplementary requisitions are submitted throughout the year for any unforeseen requirements.

At Halifax, during the past year, 97,421 tons of coal were handled, and at Esquimalt 26,129 tons. Supply depots were also maintained at outlying points during the past year for the convenience of vessels engaged in the Gulf of St. Lawrence patrol and for outlying establishments.

TRANSPORT SECTION.

Shortly after the outbreak of war, owing to the necessity of utilizing all available tonnage and to cope with the traffic, this department undertook to supply the empty Admiralty colliers with cargoes for European ports. This scheme gradually developed into the present organization under which this department, in conjunction with Mr. A. H. Harris, Acting Director Overseas Transport, is enabled to ship thousands of tons of material daily from all ports of Canada to the allied nations. The sailings of this service now average more than one a day. By the co-operation of the different railway companies throughout Canada the service has gradually improved until at present no difficulty or congestion of traffic is experienced, as the immense quantities of freight are directed to one or another Canadian port for shipment.

Through the courtesy of the Canadian Pacific Railway Company, their docking facilities at the different ports have been placed at the service of the Overseas Transport. This has proven of great advantage and has aided considerably in rendering the transport service most efficient.

A statement, showing the growth of the Transport Service, and also a statement of disbursement accounts of Overseas Transport Service for the past fiscal year may be found in the report of Mr. J. A. Wilson, Director of Stores, at page 30.

III.—FISHERIES PROTECTION SERVICE.

The following vessels belonging to the Fisheries Protection Service were in commission during the past year:—

East Coast—*Canada, Constance, Curlew, Petrel, Gulnare.*

Great Lakes.—*Vigilant.*

West Coast.—*Malaspina, Galiano, Restless, Newington.*

During the year the *Canada* was on active naval service and was, therefore, not available for Fisheries Protection duties.

The *Curlew* patrolled the bay of Fundy and west coast of Nova Scotia, following the American fishing fleet to prevent fishing within the three-mile limit. When not occupied on this service she was utilized at Halifax in connection with naval operations.

The *Constance* was engaged on naval duties throughout the year, with the exception of a short cruise on Fisheries Protection work during December.

The *Petrel* was engaged during the year on naval work as well as on Fisheries Protection duties. She was also utilized by the Director of the Naval Service in carrying out inspections of life-saving stations. This vessel rendered assistance on several occasions to vessels in distress.

The *Gulnare* was engaged throughout the year on naval duties and was not available for Fisheries Protection service.

The *Vigilant* was commissioned on the 1st April, 1915, and at once proceeded to the west end of lake Erie to patrol the fishing grounds. The vessel was also used at different times throughout the year to inspect the life-saving stations on the Great Lakes. She continued throughout the season to carry on the patrol work to enforce the international fisheries regulations. During the year this vessel steamed 3,751 miles and seized 1,531 fishing nets, which were sold by public auction.

The *Malaspina* was engaged in Fisheries Protection duties as well as on Examination Service in connection with naval operations at Esquimalt.

The *Galiano* was also utilized at different periods in naval work and when her services were not required at Esquimalt she proceeded on her regular Fisheries Protection duties.

The *Restless* and *Newington* were both engaged on naval service continuously and were unavailable for Fisheries Protection work.

The report of Vice-Admiral C. E. Kingsmill on the Fisheries Protection service is appended at page 36.

IV.—TIDAL AND CURRENT SURVEY.

The Tidal and Current Survey Branch has for its object the investigation of tides and currents, and the publication of the information obtained to aid navigation in waters where the movements of tides and currents were previously unknown. For this purpose tide stations were established at carefully selected points along the coasts, where observations are taken. From these observations the behaviour of the tides and currents is determined and reduced to governing laws. By obtaining this information for a sufficient period, the officers of the branch are able to predict scientifically the tides of the future; and to prepare tide tables for the principal stations or ports of reference, and for the turn of the tidal streams. The tides at the harbours throughout each region are brought into relation with these principal stations; so that the tides in any locality can be readily found with reference to the tide tables. The investigations already made afford information for the time and variations of tides and currents for the greater portion of the navigable waters of the Dominion. The results of the investigations and the tidal predictions are published yearly in the "Tide Tables" which are issued well in advance of the year for which they are made out.

In addition to the regular work of the branch, the question of mean sea-level is given careful attention. From the earliest days it was realized that this information would be indispensable as a basis for extended levelling. It has now proved so, to

the Department of Public Works and to the Geodetic Survey in connection with their levelling operations. As the levels determined by the Tidal Survey have been preserved by reference to bench marks which were established at all points where tidal stations have been operated, the information required was readily available by reference to these. Had this not been foreseen, the work of the other departments would have suffered serious delays in obtaining this basis.

During the past year, a similar basis has been provided for the extended levels which are being carried on over the railway system of Prince Edward island. The accurate value of mean sea-level at Charlottetown which has been determined by the Tidal Survey from five years of continuous observation, was utilized for this purpose. Another province has thus been placed on a satisfactory basis as regards its levels.

Similar information has been obtained and supplied for Hudson bay in connection with the line of levels carried from Winnipeg by the Surveys Branch of the Interior Department.

Investigations of the currents were carried on in important navigable waters on both the eastern and western coasts during the past year. On the eastern coast, the Grand Narrows and Bras d'Or lakes on the route from Halifax to Sydney were given particular attention, as well as the gut of Canso. The complex tidal and current irregularities in these waters have, as a result, been reduced to law and referred to established stations. The true relation of the current to the time of the tide will be obtained from the tide tables for the coming year.

Important work has also been carried on in the Saguenay district. This district is rapidly growing in importance as an industrial centre. After exhaustive observations had been taken, comparisons with Quebec and Father Point were made, so that the time of high water and the depth of water available may be obtained. The results of these investigations will be published in the tide tables.

The work on the western coast was no less successful. Five principal tide stations were maintained in continuous operation throughout the year. Observations were also taken at Caulfeilds in the strait of Georgia, to supplement the information given for that region in the tide tables. The observations were also utilized for comparison with the time of slack water in the passes investigated during 1914 and 1915.

Investigation of the currents was carried on at Dodd narrows, in Gabriola pass and Porlier pass. Owing to the force of the current through these narrow passages, the towing of lumber and coal, as well as ordinary navigation, are limited to the time of slack water. The object of the work is to obtain data by which the time of slack water can be correctly predicted. The information of this nature given in the tide tables already covers the two most important passes, namely Active pass and Seymour narrows, and is being continually added to.

Much has been done during the year in the improvement of the methods of calculation for these passes and narrows. The relations between slack water and the time of the tide have been scrutinized; and further light on the various methods which give best results under different conditions has been obtained as the investiga-

tions proceed. The outcome is an improvement in the basis of calculation by which greater accuracy is secured for future years.

The work in Hudson bay has been continued during the past year. The results have been most useful to the Department of Railways and Canals in connection with the work on the terminal of the Hudson Bay railway at Port Nelson. Both there and in James bay, great assistance has been received by co-operation with other surveys. The department supplies these surveys with tide registering instruments which they supervise. The information obtained is eventually handed over to the Tidal and Current Survey when it has served their own purposes. Such co-operation has also been arranged on the St. Lawrence and in British Columbia.

Advance information with reference to the tides, and slack water, is supplied to manufacturing and shipping interests for their information before it can be published in the tide tables.

The demand for tide tables is continually growing. Besides their direct service to mariners, they are of great value to business concerns and fishermen who require to know the time of the tide, or the behaviour of the different tidal currents along the coast. The demand for the Pacific Coast tide tables required an issue of 15,000 copies. An abridged edition giving the tide tables for Vancouver and the strait of Georgia is also widely circulated and requires 10,000 copies to supply the demand.

The tide tables for the eastern coast are also greatly in demand, 8,000 copies being required. Pocket editions of the tide tables for Eastern Canada are also published in two sets, one for St. John and the bay of Fundy and another for Quebec and the St. Lawrence. The edition is found very useful on account of its convenient size. A total issue of 18,000 copies of these two publications is now necessary. All editions of the tide tables are supplied upon request, free of charge.

The report of Dr. W. Bell Dawson, Superintendent of the Tidal and Current Survey is appended at page 41.

V.—HYDROGRAPHIC SURVEY.

During the past year the work of the Hydrographic Survey Branch was carried out in the following districts:—Halifax harbour and approaches; Queen Charlotte islands; St. Lawrence river; lake Ontario; lake Superior; James bay. Automatic gauges were also maintained throughout the year in the Great Lakes and St. Lawrence river.

Owing to complaints both from the officers of the Royal Navy and the Merchant Marine that the soundings in the approaches to Halifax harbour were inaccurate, a survey party in charge of Capt. F. Anderson was sent in C.G.S. *Acadia* to examine the offshore conditions in that vicinity. The area between Sambro island and Egg island and for a distance of twenty miles offshore was carefully surveyed. No shoals were located, but the contour lines were closely charted and show slight variations from the old ones.

The improvements to Halifax harbour were also surveyed, and the results will be communicated to the Admiralty for the correction of their plans of the harbour. In addition to this work the party also established a "measured mile" in Bedford

basin for the use of the dockyard officials. A Canadian chart showing the results of the survey will be issued.

In addition to the regular work of the survey the *Acadia* was used in connection with the fishery investigation conducted by Dr. Hjort. Two trips between Halifax and Newfoundland were made in this connection during the season.

The surveys in the vicinity of Queen Charlotte islands were carried out by a party in charge of Lt.-Commander P. C. Musgrave in C.G.S. *Lilloett*. Before taking up the regular work in that vicinity, however, a survey of Fisherman bay, at the north end of Vancouver island was made. Similar work was also carried out at Milbank sound, and the approaches to the Skeena river were examined. The party then proceeded to the Queen Charlotte islands. A member of the Geodetic Survey accompanied them for the purpose of selecting a point for the main triangulation along that coast.

The survey of the east side of Queen Charlotte islands between Rose spit and Cumshewa head for a distance of ten miles offshore was completed, and the survey of the coast line of Graham island was extended from Frederick island to port Lewis. An examination of Skidegate inlet was also made to the west end of East narrows and buoys and beacons were placed in the channel for the Department of Marine. Soundings were taken in Dixon entrance and between Fan island and White rock at the entrance of Browning entrance.

During the season, 90 miles of coast line were surveyed, 276 square miles were sounded and 930 linear miles of sounding were done from the ship and boats by the survey party.

The weather in this district owing to rain and fog is the cause of much loss of time in carrying on the surveys. During the past season twenty-six days were lost through rain and the party were able to work only 80 out of 186 working days.

Mr. Charles Savary in charge of a party in C.G.S. *Cartier* carried out survey work in the St. Lawrence river between Matane and cape Chat on the south shore and pointe des Monts on the north shore. The work in this area is now completed and a chart giving the results of the work will be published. During the past season this party traversed 90 miles of shore line and took 1,000 miles of soundings from the deck of the ship and from boats.

A survey was also made at Chicoutimi and the position of buoys was noted for entry on the new chart of this area about to be published. During the winter of 1914-15 the *Cartier* was used for examination service and it was not ready for service under the Hydrographic Survey until June. This delay shortened the season considerably for the St. Lawrence party.

The survey of lake Ontario was in charge of Mr. G. A. Bachand with a party in C.G.S. *Bayfield*. The survey of the west end of lake Ontario, Hamilton bay, Port Dalhousie, Port Credit, Oakville, and Bronte harbours was completed. This completes the work at the west end of the lake and charts of the whole area and of the harbours mentioned will be published shortly.

In the latter part of the season a survey of Kingston harbour and approaches was begun. The work will be completed during the coming season. During the year

90 miles of traversing were done and 460 miles of sounding from boats and 280 miles from the deck of the ship were taken.

Mr. H. D. Parizeau with a survey party in C.G.S. *La Canadienne* carried out the work of this branch in lake Superior. A survey was carried on at Owen Sound and Byng inlet. The work begun the previous year at the latter place was completed, and a chart giving the results of the work is under preparation. An inspection of buoys at Little Current was made so that they might be in accordance with the chart recently issued.

The main work of the party was carried out between Oiseaux bay and Copper island, where off-shore soundings were taken. This work completes the survey of the north shore of lake Superior from Pigeon bay to Otter head, with the exception of Nipigon and Black bays. During the fall the triangulation of Nipigon bay was commenced. The party traversed 43 miles of coast line and sounded 624 miles from boats and 535 miles from the deck of the ship.

The James bay survey was in charge of Mr. Paul Jobin. The party proceeded to Moose Factory by way of Cochrane. At Moose Factory they chartered a small vessel for the season to carry on the work. A survey of the mouth of Moose river was completed, and a chart has been prepared. The party then surveyed the south of James bay as far as Charlton and Strutton islands. Upon the completion of this work they returned to Ottawa.

Conditions for navigation in James bay were reported to be generally good during the season. The ss. *Bonaventure* arrived at Strutton island on the 3rd August, having encountered very little ice in Hudson bay.

During the year, eleven automatic gauges were operated on the Great Lakes. On the St. Lawrence river sixteen gauges were operated. Particulars of the work in connection with the automatic gauges may be obtained from the report of the Hydrographic Survey Branch.

In addition to the regular work of the branch considerable assistance has been given to the Tidal and Current Survey. Tide-registering instruments have been maintained by the different survey parties, particularly in the St. Lawrence river and James bay, and the information obtained has been handed to the Tidal and Current Survey.

The work of the Hydrographic Survey has been carried on successfully during the past year. Several members of the survey have enlisted for active service and their absence has been keenly felt in carrying on the work.

The report of W. J. Stewart, C.E., Chief Hydrographer, is appended at 54.

VI.—CANADIAN ARCTIC EXPEDITION.

The Canadian Arctic Expedition which, for the past two years, has been attracting popular attention, has come through another year of successful exploration, and has added many interesting and instructive facts to the history of the arctic regions.

During the first year, owing to the unusual ice conditions, the expedition, which was divided into two divisions, was unable to proceed as far into the northern regions as had been planned. The southern division were prevented by the ice from following the coast further than Collinson point, Alaska, and were obliged to winter there.

The members, nevertheless occupied their time very profitably from an expeditionary point of view and successfully carried out surveys of the coast as far as and including the Mackenzie delta. They also made a special study of the life habits of the natives in the vicinity, took tidal observations and carried out astronomical work.

The northern division were also unfortunate. The party in the C.G.S. *Karluk* were carried by drift ice far to the eastward along the north coast of Canada. Mr. Stefansson and three companions in an attempt to reach shore from that vessel, on a hunting trip to increase the supply of fresh meat, were obliged to seek shelter, during a gale, on Thetis island. While there, the vessel was carried away and the party were left on the shore with very little provisions, and with winter approaching. The explorer's great experience in northern travel, however, enabled him to reach Collinson point without any great difficulty, where he joined the southern division.

The party in the *Karluk* were carried about for four months in the ice. In January, 1914, the vessel was crushed and sunk, and the party were obliged to encamp on the ice. The short diary entries of Captain Bartlett (Naval Service Annual Report for 1915, page 22) tell more clearly than lengthy reports of the hardships encountered by the members from the time the vessel was sunk until they were finally rescued. Captain Bartlett's bravery and devotion to the members of the expedition are shown in his simple statement, "I intend to-morrow to leave with Eskimo for the Siberian coast . . . . leaving the men on the island." The distance to the Siberian coast is 160 miles, across the ice, which was in a broken-up state, making travel very difficult and dangerous. He succeeded, however, in reaching shore and reported the fate of the vessel and the position of the survivors to this department. The department sent a relief expedition which succeeded in rescuing the party from Wrangel island.

Mr. Stefansson, upon his arrival at Collinson point, decided that the *Karluk* party could not be counted upon to carry out the work of the northern division. The whereabouts of the vessel and its ultimate fate were unknown to him for over a year later. Although the absence of the *Karluk,* with supplies, was a serious handicap, he did not hesitate to adopt the one remaining course open for the exploration of Beaufort sea, that is, a journey on foot over the ice. He made all preparations and on March 22, 1914, accompanied by two men, he set out on foot over Beaufort sea. His objective was Banks island. On the journey from Martin point he made every effort to cover as much as possible of the little known areas of Beaufort sea west of Banks island. He continued his research on the sea ice until their food supplies became so low that they were obliged to live on limited rations, and were depending upon loose cakes of ice to carry them through the open leads. The scientific investigations carried out both on this journey and afterwards on Banks island are of great value. During the journey the eminent explorer showed the greatest courage and endurance and demonstrated his devotion to the work of the expedition. The desire for further investigation induced him to remain on Banks island until the sea ice again became firm, when he set out on a journey still farther north, over the ice of Beaufort sea. This journey brought him along the west coast of Prince Patrick island and thence north to cape McClintock. Here he found a cairn in which were deposited the records of Capt. F. L. McClintock, dated 15th June, 1853.

Captain McClintock was, at that time, carrying on investigations in the north in search of some clue as to the fate of the Franklin expedition. It is a notable fact that under practically the same circumstances Mr. Stefansson was able to carry on successfully a trip on foot over the ice, whereas the Franklin party succumbed. This is entirely due to the efficiency of modern firearms and to the great experience of Mr. Stefansson himself. He insists on all the members of his party adopting the life methods of the Eskimo while in the north, for his experience has shown him that this is the best means of combating scurvy and other diseases prevalent in the northern regions.

Upon leaving cape McClintock the party followed a course about northeast by east for three days, when new land was sighted. During the time they remained in the vicinity of this new land the weather was so foggy that they were unable to obtain reliable readings for its exact location. The land, from what they saw of it, was of considerable size, hills and mountains appearing particularly to the northeastward, at a great distance. It is hoped that during the winter of 1915-16 the party were able to obtain much more definite information with reference to their discovery.

As by the time they reached the new land the season was well advanced and the summer of 1915 was fast approaching, they were obliged to hasten south to Banks island. Early in August the party arrived at Kellett, Banks island, from the northern ice trip, and immediately made arrangements with a whaling vessel to be taken to the mainland. The reports forwarded to the department contain a full description of the ice journey made and the scientific work carried on.

The northern division were unable to attain the proposed base on northern Banks island but were obliged to winter at Princess Royal island, Prince of Wales strait. An ice journey was undertaken in April 1916 when Mr. Stefansson and party set out for the new land discovered last year. During the summer and fall of 1916 it was proposed to investigate thoroughly the new land working from a base at Winter Harbour, Melville island. The northern division of the expedition will probably return to civilization late in 1916 or in the summer of 1917.

The southern division left Collinson point on the 25th July, 1914, and proceeded along the north coast of Canada to the eastward until they entered Dolphin and Union strait. Here they found an ideal harbour from which operations could be carried on. This harbour was unmarked on the charts, so they named it Bernard harbour. It is situated on the south shore of Dolphin and Union strait, about midway between cape Bexley and cape Krusenstern.

Using Bernard harbour as a base, the party have been carrying on survey work along the coast and also investigating the mineral deposits between cape Parry and Kent peninsula during the past two seasons. The habits of the Eskimos of the eastern regions, which, prior to Mr. Stefansson's expedition and life among them between 1908-13, were very little, if at all, known, were given further study, and many new facts with reference to them were brought to light.

The southern shore of Victoria island was also visited and the ethnology of the Eskimos carefully investigated.

The work of the southern division throughout has been most thorough, and the area allotted to them has been covered in a very complete manner. During the summer of 1916 the different surveys under way should be completed, and the expedition is to return south in the fall.

A complete report of the scientific work carried out by the different parties and also a chart of the different journeys made may be found at page 71.

VII.—LIFE-SAVING SERVICE.

The object of this service is to render assistance to the crews and passengers on ships in distress and to rescue persons from wrecked vessels along the Canadian coasts.

The Department of the Naval Service also undertakes to reward bravery in life-saving at sea. It does not, however, deal with cases of life-saving in the rivers and on the coasts; such cases should be brought to the attention of the Royal Canadian Humane Society at Hamilton, Ont.

During the past year thirty-seven life-saving stations were maintained throughout the Dominion, and the required number of drills have been performed by each station. Frequent inspections of the various stations have been made to ascertain their being in an efficient condition.

The following table gives the number of stations in each province, together with information respecting their crews:—

East Coast.

Province.	Number of Stations.	Crew.
Nova Scotia	15,	One with a permanent crew, who live at the station throughout the year; Two with permanent crews during the season of navigation only, and Twelve with volunteer crews, who drill twice a month and are called out on the occasion of a wreck.
New Brunswick	4,	One with permanent crew; One with permanent crew during the season of navigation only, and Two with volunteer crews.
Prince Edward Island.	5,	With volunteer crews.

Great Lakes.

Province.	Number of Stations.	Crew.
Ontario	10,	Three with permanent crews during the season of navigation only, and Seven with volunteer crews.

West Coast.

Province.	Number of Stations.	Crew.
British Columbia.	3,	With permanent crews.

As motor-boats are now replacing sail-boats in many of the fishing districts, the danger of the fishermen's vessels becoming disabled is gradually diminishing. The fishermen are also able to render assistance to one another in cases of breakdown, so that in many instances it is unnecessary for the life-boats to put to sea.

Assistance was, however, rendered on many occasions to the occupants of vessels wrecked or in danger. On several occasions the vessels themselves were brought into safe anchorage.

Particulars of services rendered by individual stations are contained in the report of Vice-Admoral C. E. Kingsmill on the Life-saving Service at page 81.

VIII.—RADIOTELEGRAPH BRANCH.

During the past year the work of the Radiotelegraph Branch has been carried out in an efficient manner: 142 stations composed of Government commercial and coast stations; government ship and licensed ship stations; public and private commercial stations; training schools and licensed experimental stations, have been operated throughout the Dominion. At the commencement of the war all amateur stations in Canada were closed down.

The following stations on the East coast, formerly operated by the Marconi Wireless Telegraph Company, have been taken over and are now operated by the Department of the Naval Service: Camperdown, N.S., on the 1st May, 1915; North Sydney, N.S., on the 1st August, 1915; Point Riche, Nfld., on the 1st September, 1915; Sable island, N.S., on the 1st January, 1916.

The amount of business handled by the East Coast, Great Lakes and West Coast stations shows a decrease over last year. This decrease is directly attributable to the war and the placing of these stations on a war basis. The business at LePas and Port Nelson stations on the Hudson Bay chain shows an increase. Following is a comparative statement of business handled during 1914-15 and 1915-16:—

—	1914-15.		1915-16.		Increase or Decrease.	Messages.	Words.
	Messages.	Words.	Messages.	Words.			
East Coast.	59,846	1,196,512	45,195	864.020	Decrease. . .	14,651	332,492
Great Lakes..	15,785	326,505	13.617	259,366	" ...	2,168	67,139
West Coast....	98,386	1,532,526	95,048	1,103,395	" ...	3,338	429,131
Hudson Bay	5,259	325,961	7.617	570,281	Increase . .	2,358	244,320
Totals.....	179,276	3,381,504	161.477	2,797,062	Net decrease	17,799	584,442

The total revenue from this service during the past year amounted to $8,494.99.

The department requires that all those entering the Radiotelegraph service as operators, pass a proficiency examination to determine their qualifications prior to acceptance. During the past fiscal year one hundred and seven operators were examined at different points throughout Canada; out of this number fifty-two were successful. Applications for entry as operators in the Radiotelegraph Service should be addressed to "The Deputy Minister, Naval Service Department, Ottawa."

On account of the confidential nature of the messages passing through the hands of radiotelegraph operators, and the secret instructions with which they must be entrusted during the present time, it was considered advisable to enlist in the Royal Naval Canadian Volunteer Reserve all the wireless operators in the employ of

the department; for this purpose the rank of wireless operator was instituted, and regulations were drawn up to meet the requirements in this connection. The operators have now been enlisted in the R.N.C.V.R.

In addition to its regular work the Radiotelegraph Service has on many occasions been instrumental in obtaining assistance for vessels in distress and in communicating instructions from their owners.

The usual repairs to keep the different stations in an efficient condition and regular inspections of all stations were carried out during the year. The power of the North Sydney station was increased by the installation of a new transmitting apparatus of 2-k.w. power. Repairs were also carried out at Point Riche, Alert bay, Cape Lazo, Dead Tree point, Digby island, Estevan, Gonzales hill, Ikeda, Pachena, and Triangle island stations. Work has been started on the new radiotelegraph station at Mansel island; the men and material necessary to carry out the work were transported in C.G.S. *Burleigh* to Mansel island where the eight mast anchors and building foundations were installed, and construction shacks were built. Preparations for the erection of the buildings and masts are now completed. When the station is completed it will be utilized to communicate with ships entering Hudson strait and bay. By the use of this station vessels entering Hudson strait will then be able to communicate via Mansel island and Port Nelson stations with the outside world.

The department, in addition to the above-mentioned work, has equipped all munitions transports running between Canada and England with radiotelegraph apparatus and has supplied operators and supervised the operation of the stations in connection therewith. This work has been carried out on behalf of the British Admiralty, with whom an agreement has been drawn up for that purpose.

The total number of persons employed in the Radiotelegraph Branch during the past fiscal year was four hundred and four.

The branch has carried out in addition to the above a great amount of work of a confidential character in connection with the war. It is not advisable at the present time to give particulars of this work. The report of Mr. C. P. Edwards, Superintendent of the Radiotelegraph Branch, is appended at page 84.

GENERAL.

I have much pleasure in expressing my satisfaction at the efficient manner in which officers of the department have carried out their duties during the year.

I have the honour to be, sir,
Your obedient servant.

G. J. DESBARATS,
Deputy Minister.

OTTAWA, August 10, 1916.

The Deputy Minister,
Department of Naval Service,
Ottawa, Ont.

SIR,—I have the honour to submit herewith a financial statement showing the expenditure under the various appropriations, and the revenue received by the department during the fiscal year ended March 31, 1916.

The expenditure on account of H.M.C.S. *Niobe*, H.M.C.S. *Rainbow*, submarine *C.C. 1* and *C.C. 2* and depot, H.M.C.S. *Shearwater* shore depot and extraordinary expenditures for the dockyards at Halifax and Esquimalt have been charged to War Appropriation. The ordinary expenditure for the up-keep and maintenance of the Royal Naval College, Halifax and Esquimalt dockyards has been charged to the Naval Service Appropriation.

A statement of stores supplied, work done and advances made on behalf of the British, French, Japanese, and Russian Governments is also submitted. These disbursements amount during the fiscal year 1915-16 to $2,976,621.72, and to this should be added the sum of $708,996.46 transferred from fiscal year 1914-15, thus making a grand total of $3,685,618.18 debited against the Allies during fiscal year 1915-16. Credits and cash received during the year amount to $2,967,217.45, leaving an outstanding balance of $718,400.73 which is not included in the amounts charged to War or Naval Appropriations, but carried forward in suspense to the fiscal year 1916-17.

I have the honour to be, sir,
Your obedient servant,

L. J. BEAUSOLEIL,
Chief Accountant.

STATEMENT of Jobs completed in the Workshops, and Stores Supplied by the Halifax and Esquimalt Dockyards, during Fiscal Year 1915-16.

Service.	Halifax.	Esquimalt.
	$ cts.	$ cts.
Naval service	425,504 64	339,643 31
Fisheries Protection service	20,289 22	35,251 24
Hydrographic surveys	13,638 75	10,024 52
Life Saving service	2,478 78	356 50
Radiotelegraph service	7,916 05	4,090 81
Fishery Patrol service	6,422 11	320 59
British Admiralty	200,590 17	112,234 06
French "	1,170 56	.....
Russian Government	1,325 18	.....
Japanese "	.....	2,153 84
Commonwealth of Australia	403 89	.....
Dept. of Marine	.....	3,909 92
" Militia and Defence	.....	1,741 38
Sundries	2,692 37	2,945 96
	682,431 72	512,672 13
Wages paid	156,445 97	198,902 22
Salaries	30,655 35	34,096 66

STATEMENT of Appropriation Accounts for Fiscal Year 1915-16.

Service.	Appropriation	Expenditure.	Balance unexpended.
	$ cts.	$ cts.	$ cts.
Naval service	1,000,000 00	401,722 28	598,277 72
Fisheries protection service	375,000 00	145,241 00	229,759 00
Hydrographic surveys	390,000 00	231,629 42	158,370 58
Radiotelegraph service	350,000 00	188,358 25	161,641 75
Tidal service	35,000 00	16,793 23	18,206 77
Patrol of the Northern Waters of Canada	85,000 00	75,616 44	9,383 56
New Fisheries Protection steamers	30,000 00	.....	30,000 00
Rewards for saving life, including life saving service	125,400 00	95,065 65	30,334 35
	2,390,400 00	1,154,426 27	1,235,973 73
Fisheries—			
Salaries and disbursements of fishery officers	305,000 00	247,539 58	57,460 42
Building fishways and clearing rivers	30,000 00	5,205 55	24,794 45
Legal and incidental expenses	4,000 00	1,138 98	2,861 02
Canadian Fisheries Museum	8,000 00	6,646 80	1,353 20
Oyster culture	6,000 00	4,470 95	1,529 05
Cold storage and transportation of fish	150,000 00	89,459 10	60,540 90
Dogfish reduction works	60,000 00	32,137 86	27,862 14
Services of customs officers *re Modus Vivendi* licenses	900 00	439 65	460 35
Fisheries Intelligence Bureau	5,000 00	4,618 64	381 36
Fisheries patrol service	190,000 00	153,933 97	36,066 03
Exhibit of fresh and cured fish (Toronto Exhibition)	15,000 00	10,928 97	4,071 03
Fish breeding establishments	400,000 00	275,079 38	124,920 62
Inspection of canned and pickled fish	25,000 00	12,327 75	12,672 25
Building fisheries patrol boats	32,000 00	21,423 10	10,576 90
Fisheries patrol steamer for Lake Winnipeg	100,000 00	49,212 81	50,787 19
Removal of obstructions, Fraser river	30,000 00	7,007 83	22,992 17
Investigation of Hudson Bay fisheries	10,000 00	442 17	9,557 83
Compensation to Captain Peter Carlson	4,500 00	4,500 00	.....
Marine Biological Stations and Investigations	26,000 00	26,000 00	.....
Expenses investigating claims for compensation under Pelagic Sealing Treaty	4,100 00	4,049 15	50 85
	1,405,500 00	956,462 24	448,937 76
Civil government salaries	170,600 00	150,795 81	19,804 19
Contingencies	50,000 00	42,869 71	7,130 29
	220,600 00	193,665 52	26,934 48
Fishing bounty	160,000 00	158,741 05	1,321 15

RECAPITULATION.

Naval service	2,390,400 00	1,154,426 27	1,235,973 73
Fisheries	1,405,500 00	956,562 24	448,937 76
Civil Government	170,600 00	150,795 81	19,804 19
Contingencies	50,000 00	42,869 71	7,130 29
	4,016,500 00	2,304,654 03	1,711,845 97
Fishing bounty	160,000 00	158,741 05	1,321 15
War appropriation	.....	3,274,019 94	.....
Total expenditure from appropriations, fiscal year 1915-16	.....	5,737,415 02	.....
Suspense accounts (recoverable) transferred to fiscal year 1916-17, being amount due for stores supplied and work done on behalf of the British, French, Russian governments, etc	.....	718,400 73	.....
	.....	6,455,635 75	.....

STATEMENT of Appropriation Accounts for Fiscal Year 1915-16—*Continued.*

SUSPENSE ACCOUNTS.

Amounts outstanding in respect to stores supplied, work done, and advances made, etc. at end of fiscal year 1915-16.

British Admiralty	$	607,626 16
British war office		26,946 46
Commonwealth of Australia		54,981 97
French Admiralty		18,205 88
Russian Government		6,618 65
Militia and Defence Department		2,014 55
Department of Marine		428 48
Miscellaneous		1,578 58
	$	718,400 73

STATEMENT of Revenue of the Department of the Naval Services for Fiscal Year ended March 31, 1916.

	$ cts.	$ cts.
Royal Naval College—College fees (13 cadets)		1,300 00
Fisheries revenue		96,376 26
Modus Vivendi (licenses to United States fishing vessels)		9,912 00
Casual revenue		55,185 87
Miscellaneous revenue		985 32
Wireless apparatus licenses		227 00
Wireless operators examination fees		119 00
Radiotelegraph revenue:—		
Alert Bay station	491 11	
Cape Lazo station	347 85	
Dada Tree station	413 17	
Digby Island station	1,429 95	
Estevan Point station	1,508 89	
Gonazles Hill station	1,810 01	
Ikeda Head station	86 72	
Pachena point station	43 25	
Point Grey station	340 14	
Triangle station	923 41	
Malaspina station	0 72	
Camperdown station	154 73	
Magdalen Islands station	574 57	
Kingston station	2 12	
Midland station	9 19	
Point Edward station	17 24	
Port Arthur station	12 74	
Port Burwell station	6 07	
Sault Ste. Marie station	11 02	
Tobermory station	3 14	
Toronto station	16 64	8,202 68
		$ 172,308 13

FISHERIES Revenue for Fiscal Year ended March 31, 1916.

Provinces.	Amount Collected.	Refunds.	Net Amount.
	$ cts.	$ cts.	$ cts.
Ontario	2,600 65		2,600 65
Quebec	7,006 89		7,006 89
New Brunswick	15,098 80	1 00	15,097 80
Nova Scotia	7,109 18	140 00	6,969 18
Prince Edward Island	3,165 35		3,165 35
Manitoba	5,926 00		5,926 00
Saskatchewan	3,215 00	20 00	3,195 00
Alberta	5,237 85		5,237 85
British Columbia	46,872 54	10 00	46,862 54
Yukon	315 00		315 00
	$ 96,547 26	$ 171 00	$ 96,376 26
Modus Vivendi licenses	9,912 50	0 50	9,912 00
			$ 106,288 26

STATEMENT of Expenditure under the War Appropriation for Fiscal Year ending March 31, 1916.

Ship or Establishment.	Pay and Allowances.	Stores and Allowances.	Medical Services.	Subsistence of Prisoners.	Recruiting Expenses.	Repairs and Maintenance.	Purchase of Ships and Alterations.	Works, Lands, Buildings.	Misc. Effective Services.	Separation Allowance.	Non-Effective Pay.	Harbour Defence.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
H.M.S.C. "Niobe"..	258,671 65	264,119 19	3,046 55	190 00	8 79	39,198 29	.....	.....	20,984 54	47,307 90	11,319 01	.....	644,845 92
H.M.C.S."Rainbow"	108,566 58	42,269 87	1,973 90	765 95	.....	45,131 71	.....	.....	6,030 69	16,060 14	13,864 29	.....	234,663 13
Submarines and Depot.....	80,900 70	61,273 85	2,200 13	120 95	.....	38,676 04	.....	.....	8,325 12	7,875 28	232 00	.....	199,604 07
H.M.C.S. "Shearwater (Shore Depot)	85,784 17	72,660 37	1,259 86	429 80	990 16	.....	.....	.....	5,396 33	11,965 44	1,172 75	.....	179,658 88
H.M.C.S. "Diana" (Depot).....	47,261 29	20,997 79	1,764 41	18 50	69 17	667 91	.....	.....	19,345 29	9,177 10	.....	.....	99,301 46
H.M.C.S. "Canada"	33,869 92	30,031 79	1,183 35	.....	.....	14,435 63	.....	.....	2,094 12	2,979 65	.....	.....	84,594 46
H.M.C.S."Margaret"	33,282 31	25,199 34	55 75	.....	.....	14,616 03	.....	.....	2,655 56	6,932 90	.....	.....	82,741 89
H.M.C.S. "Florence"	13,395 17	16,401 94	25 90	.....	.....	7,187 70	.....	.....	8,992 15	1,179 80	.....	.....	47,182 66
H.M.C.S. "Hochelaga".....	15,343 17	19,926 63	46 50	.....	.....	19,650 10	92,642 18	.....	839 57	2,539 05	.....	.....	150,987 20
H.M.C.S. "Stadacona".....	14,413 27	19,797 74	106 75	.....	.....	7,529 14	114,986 80	.....	702 25	1,498 90	.....	.....	159,034 85
H.M.C.S. "Grilse"..	9,893 91	22,943 28	21 50	.....	.....	6,648 25	126,564 01	.....	346 46	551 05	.....	.....	166,968 46
H.M.C.S. "Tuna"....	3,777 08	4,633 98	6 75	.....	.....	3,045 25	.....	.....	287 26	678 75	.....	.....	12,432 07
Atlantic Coast Defence.....	5,624 14	.....	.....	.....	.....	.....	.....	.....	3,223 90	803 20	.....	694,666 12	704,317 36
Pacific Coast Defence	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	133,523 37	133,523 37
H.M.C.S. "Shearwater" (Ship).....	.....	.....	.....	.....	.....	41,077 68	.....	.....	.....	.....	.....	.....	41,077 68
H.M.C.S. "Protesilaus".....	.....	10,670 29	.....	.....	.....	66 17	.....	.....	.....	.....	.....	.....	10,736 46
Halifax Dockyard....	.....	8,292 24	.....	.....	.....	9,127 14	.....	44,928 77	2,490 35	.....	.....	.....	64,838 50
Esquimalt Dockyard	.....	2,479 22	122 00	.....	.....	1,294 22	.....	.....	1,576 73	.....	.....	.....	5,472 17
Barrington Wireless Station	.....	.....	.....	.....	.....	.....	.....	39,716 19	.....	.....	.....	.....	39,716 19
Headquarters.....	19,853 96	.....	.....	.....	.....	.....	.....	.....	7,983 98	.....	.....	.....	27,837 94
General account.....	.....	40,263 19	238 70	.....	6 00	.....	.....	.....	142,548 95	328 25	1,100 13	.....	184,485 22
	730,637 32	661,963 71	12,052 05	1,525 20	1,074 12	248,351 26	334,192 99	84,644 96	233,823 25	109,877 41	27,688 18	828,189 49	3,274,019 94

STATEMENT of Expenditure under the Naval Service Appropriation for Fiscal Year ending March 31, 1916.

	H.M.C.S. "Niobe".	H.M.C.S. "Rainbow"	Halifax Dockyard.	Esquimalt Dockyard.	Royal Naval College.	Head-Quarters.	General account.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
	Credit,							
Pay and allowances	499 56	89 60		731 21	44,968 31	17,298 21		62,587 77
Stores and allowances			160,954 64	50,640 53	15,956 66	405 53	4,895 09	232,852 45
Medical services				5 00	191 88			196 88
Cadets misc. expenses					202 26			202 26
New machinery			12,710 81	12,549 42	1,020 14			26,280 37
Repairs to machinery				7,064 44	535 50			7,599 94
Repairs and maintenance of buildings			15,993 64	19,388 48	2,962 65			38,344 77
Misc. dockyard services			34,711 78	52,012 22				86,724 00
			Credit,	Credit,				Credit,
Percentage on stores and wages			23,696 94	56,270 36				79,967 30
New works			3,182 67					3,182 67
Misc. effective services	141 75	140 12	3,971 29	2,360 46	9,146 95	337 41	192 95	16,290 93
Non-effective pay	1,269 80	855 14			3,244 62		768 93	6,138 49
			Credit,					
Depreciation			8 92	1,640 17				1,631 25
			Credit,	Credit,				Credit,
Arisings			2,229 73	964 79				3,194 52
Conversions (incomplete)				2,852 32				2,852 32
	911 99	1,084 86	205,589 24	92,009 10	78,228 97	18,041 15	5,856 97	401,722 28

NAVAL SERVICE.

DEPARTMENT OF THE NAVAL SERVICE,
OTTAWA, April 1, 1916.

The Deputy Minister,
Department of the Naval Service,
Ottawa, Canada.

SIR,—I have the honour to report regarding the Naval Service, for the fiscal year ending March 31, 1916.

The progress, both mental and physical, of the cadets at the Royal Naval College at Halifax still proves most satisfactory. An examination for the entry of cadets to the college was held in May, 1915, and six cadets were entered. The officers of the college continue to report most favourably on the cadets, and the midshipmen who have been serving in ships of the Royal Navy, H.M.C. ships *Niobe, Rainbow,* submarine C.C.I. and C.C. 2, and patrol vessels, have also been most favourably reported upon and proved themselves capable and efficient. The fourteen midshipmen who entered the college in January, 1911, were promoted to acting sub-lieutenant on December 1, 1915. Two of these officers are now serving in the British Submarine Service. Four lieutenants and five engineer lieutenants are serving in vessels of the Grand Fleet.

The requisite number of the personnel for the manning of all H.M.C. Ships and Establishments has been maintained by the entry of men with previous naval experience, and by the employment of R.N.C.V.R. officers and men.

H.M.C.S. *Niobe* continued to be employed under the command of the Rear Admiral Commanding, North American Station, until September last, when, owing to the very considerable amount of almost continuous steaming that she had done since the outbreak of the war, it was considered that the general state of her machinery and boilers would not warrant her continuance on this duty. This fact, in conjunction with the urgent necessity of a depot ship, to be used to accommodate numerous drafts of men passing through Halifax, and of a parent ship for the vessels employed on patrol work, etc., on the Atlantic coast, caused the decision to be made to pay her off and re-commission her for the purposes indicated. Since that date, she has proved suitable for her new functions, and of considerable utility both in connection with the Canadian and Imperial services.

H.M.C.S. *Rainbow* has been continuously employed on the west coast in trade protection and other important duties, under the orders of the Imperial Senior Naval Officer of that station.

The two submarines and their parent ship, the *Shearwater,* have been actively employed for the defence of the British Columbian coasts.

A large number of other vessels, both governmental and private, are being utilized in connection with the naval defence of the coasts on such duties as examination service, mine sweeping, patrols, and other necessary work.

The Naval Volunteers which were established just previous to the outbreak of the war developed largely in the West, where some 400 officers and men are enrolled. These volunteers have done good service both ashore and afloat, a considerable number serving continuously in the *Rainbow* since the outbreak of hostilities, whilst others are in H.M.S. *Newcastle* and various vessels at Esquimalt, including the submarines and their parent ship, the *Shearwater.*

A considerable number of R.N.C.V.R. officers and men are also employed in various ships on the East Coast.

In April, 1915, the Admiralty requested the department to select a considerable number of men to be trained as pilots for the Royal Naval Air Service. This involved a very considerable amount of work and correspondence, many hundreds of applications for entry being received from all over the Dominion. These were gone into individually, and arrangements made for interviewing and medically examining likely applicants. All those accepted then went to private flying schools to obtain their Aero Club Certificates, and, upon obtaining them, were sent to England. The number called for by the Admiralty was twice increased, but the full quota was obtained; and the great majority entered up to the present have now obtained their flying certificates and been sent to England.

Recently the department was also requested by the Admiralty to ascertain what men could be entered for the Auxiliary Patrol (Motor-boat) Service. Several hundred applications have been received, and these have been classified, pending the arrival of a recruiting committee from England, who will make final selections.

The duties and work carried out by the Naval Intelligence Department have increased considerably in magnitude and importance, and have been carried out in a very satisfactory manner.

I have the honour to be, sir,

Your obedient servant,

C. E. KINGSMILL, *Vice-Admiral,*
Director of the Naval Service.

STORES BRANCH.

OTTAWA, July 21, 1916.

The Deputy Minister.
Department of the Naval Service,
Ottawa.

SIR,—I have the honour to submit the annual report of the Stores Branch for the fiscal year ending March 31, 1916.

In keeping with the organization of the branch, and for convenience, the report is divided into three sections:—

1. Purchasing and contract section,
2. Stores section,
3. Transportation section.

I. PURCHASING AND CONTRACT SECTION.

The duty of this section is to execute and supervise all contracts and purchases. This includes the chartering of vessels, the making of contracts for the erection of buildings and other permanent structures, for water supplies, electric light and power, telephone services, etc., for the victualling of ships crews where the victualling is not done by the department, and the purchase, by contract or otherwise, of all necessary stores and supplies of every discription. In addition to the Naval Service proper, the following branches are served in this way: Hydrographic Surveys, Tidal and Current Surveys, Radiotelegraph Service, Fishery Protection Service, Fishery Patrol Service, Fish Breeding Service, other fisheries services, Life Saving Service.

As far as possible all branches utilize the stock-keeping facilities maintained at the dockyards at Halifax and Esquimalt, and draw supplies from these points. The main duty of this section is, therefore, the procuring of supplies in replenishment of stores kept there.

Demands are received from each dockyard at the commencement of each year, providing, as far as possible, for all requirements during the ensuing year. Supplementary demands are received at intervals thereafter providing for unforeseen requirements.

Demands are classified under six headings, and include: Provisions, clothing and materials, medical supplies, naval stores, consisting of lumber, metals and hardware, tools, textiles and cordage, packings and rubber goods, paints and oils, leather goods, glass, furnishings, brushes, etc., electrical supplies, and fuel; ordnance stores and ammunition, and stationery and printing.

Tenders are called for the main items by advertisement in the press. The lesser items are purchased by limited tender, *i.e.*, tenders distributed amongst known reliable firms, or in cases of special patented or proprietary articles, by direct order. Items of small value, where no benefit can be derived through purchase in the wider markets, are referred back to the dockyard for purchase locally. Certain other items, peculiar to ships of war, are obtainable, under existing conditions, only from or through the Imperial Government. These are demanded by special requisition, forwarded through the office of the High Commissioner in London. Stationery and printing is, of course, all procured through the Government Printing and Stationery Department.

As far as possible, contracts are made to call for fixed quantities, of specified make and quality, for delivery within a given period. In cases where the exact require-

ments cannot be actually forecasted, or the facilities do not permit of large quantities being stored, contracts are made to call for delivery as required. This applies also to supplies of a perishable nature, such as fresh provisions.

Miscellaneous demands from the Fisheries and other branches, that cannot conveniently be referred to the dockyards, are dealt with to best advantage along similar lines.

Considerable purchases were made on behalf of the Imperial Government, and in lesser degree on behalf of the Australian Navy and Allied Governments.

As far as possible, all purchases were made in Canada, from Canadian manufacturers.

Contracts were entered into for the charter of eighteen vessels of varying dimensions, and nineteen large motor launches, for service as required. Expenditure under this head totalled $373,139.

Altogether twenty-three ships were victualled by contract, necessitating the execution of a like number of contracts.

Contracts were maintained on both the east and west coasts for the supply of fresh provisions at short notice to all service ships requiring such, both Canadian and Imperial. Also contracts were made for the supply of staple provisions. The Imperial Government and ships of the Imperial service took advantage of these contracts to a very considerable extent. Exclusive of purchases made by Imperial ships direct, purchases under this head totalled $262,973.

Contracts were entered into for materials for uniforms and clothing, for the making of uniforms and clothing, and for ready-made clothing of all kinds. Considerable difficulty was experienced in this connection owing to the great scarcity of raw materials and dyes, but these were overcome. Purchases under this head totalled $211,842.

Medical supplies to the value of $7,026 were purchased as required by ships and establishments to replenish.

Difficulty was also experienced in placing contracts for metals and procuring deliveries, owing to the unprecedented demand for the manufacture of munitions, and to the diversion of labour and facilities to this purpose. There was, however, no dislocation of operations on this account. Other naval stores were procured to best advantage, either by contract or purchase. Contracts were made for coal, to be supplied as required, not only to ships of the Canadian Service, but also to ships of the Imperial Service, and to transports. Altogether purchases under this head totalled $1,913,766.

Practically all ordnance stores and ammunition were procured from the Imperial Government. Purchases under this head totalled $42,852.

All stationery and printing was procured through the Government Printing and Stationery Department. Purchases under this head totalled $46,810.

Following is a summary of the purchases made during the year:—

Provisions	$ 262,973
Clothing	211,842
Medical stores	7,026
Naval Stores, not including fuel	832,503
Fuel	1,081,263
Ordnance and ammunition	42,852
Stationery and printing	46,810
	$2,485,269

II. Storekeeping Section.

The work of the whole branch hinges largely on the activities of this section, and the activities of the section depend on the demand for supplies. Organized primarily for the purpose of keeping ships of the Naval Service supplied with stores, the branch has expanded in keeping with the growth of the department, until, in addi-

tion to ships and establishments of the Naval Service proper, service is also rendered to nine ships of the Fishery Protection Service, a number of small vessels connected with the Fishery Patrol Service, six vessels of the Hydrographic Surveys, and to the Royal Canadian Naval Volunteer Reserve, the Radiotelegraph Service, the Life-Saving Service, and to the fish hatcheries and other fishery establishments throughout the Dominion. Necessarily the work of the dockyards in the manufacture and repair divisions has increased also in keeping with the growth of the department, and the filling of demands from this source is not the least of our duties.

During the year there were added to the Naval Establishment three small ships by purchase, two others by loan from private individuals, two by transfer from other departments of the Government, and thirty-seven vessels of sorts by charter, or forty-four in all. Of the latter, nineteen were motor launches, requiring little aside from uniforms, and fuel and oil, in the way of stores.

In addition, during the year ships of the Imperial Service, and transports, and in lesser degree ships of sister colonies and allied Governments, have taken increased advantage of our facilities to secure supplies, drawing freely as occasion demanded.

Supply depots are maintained at both the Halifax and Esquimalt dockyards. These are in charge of experienced store officers, who supervise the work and who are responsible to headquarters for the performance of the duties allotted to them. It is their duty to be prepared at all times to provide and issue supplies, of whatever nature required, to all ships and establishments under the jurisdiction of the department, and to such others as may be approved by headquarters; to make a strict and careful accounting of all such issues; and to see that all supplies purchased are in accordance with specifications and suitable.

The variety of stores handled is necessarily very wide, and includes staple provisions; uniforms and clothing of all kinds and materials; medical supplies, surgical instruments and hospital equipment; lumber of all kinds; metals of all kinds and in every state of manufacture; hardware and tools; textiles and cordage; packings and rubber goods, paints, oils, glass, leather goods, brushes, furniture and furnishings, tackle, navigating instruments; charts and other miscellaneous supplies of every nature; electrical stores; fuel; and ordnance and ammunition. In the inspection and choosing of these expert knowledge and wide experience are essential. For ships of war particularly, excellence of quality and reliability are of almost vital importance.

The nature of the service demands that large reserves must be maintained and kept readily available at all times. In times of peace ships' requirements can be forecasted very accurately, as their allowances are regulated carefully and authorized by warrant. In time of war, however, these allowances are increased automatically, and in addition, preparation must be made for the unexpected. Ordinarily and within reason these reserves are based on six months' requirements for all purposes. To the end that all demands might be met promptly, reserves for this year were materially increased, particularly at Halifax, at which point it was anticipated the bulk of the unexpected business would be done. At the commencement of the year the reserves at Halifax totalled in value $376,000, and at Esquimalt, $280,000. At the close of the year the reserves at Halifax totalled in value $504,763, and at Esquimalt $298,532.

At the commencement of the year requisitions were prepared as usual, providing as far as possible for all requirements for the ensuing year, and the maintenance of reserves. Unforeseen requirements were covered by supplementary requisitions as necessary, those of an urgent nature being purchased locally to best advantage. Receipts during the year totalled in value, at Halifax, $639,096, and at Esquimalt, $301,866, involving, all told, approximately 9,000 transactions.

Issue transactions during the year numbered approximately 10,000 at Halifax and 8,000 at Esquimalt, aggregating in value $510,333, and $283,334, respectively.

The Imperial authorities have kept in reserve at both dockyards large supplies of special stores for use of ships doing duty in North Atlantic and Pacific waters.

These reserves are confined to stores peculiar to particular ships and not common to all. Assistance was afforded them in the handling and accounting for these. Transactions and values in this connection are not included above.

At the commencement of the year there was in stock at Halifax 13,984 tons of coal, and at Esquimalt 9,700 tons. During the year there was received, at Halifax 6,902 tons, and at Esquimalt, 5,946 tons. Issues during the year totalled, at Halifax, 13,938 tons, and at Esquimalt 11,544 tons. As this was in large part Admiralty coal, the total value is not included in the figures given above.

In addition, very large quantities were accounted for in direct issue to ships by contractors and from colliers. In this manner 97,427 tons were handled at Halifax and on the east coast, and 26,129 tons at Esquimalt and on the west coast.

Supply depots were maintained at outlying points for the convenience of vessels doing duty along the Atlantic coast and in the gulf of St. Lawrence.

A general stocktaking was inaugurated at both dockyards in the fall of 1915 and completed at the close of the year. Stock to the value of approximately $800,000 was brought under survey, and the result, under the circumstances, was most gratifying.

III. Transportation.

The arrangements under which the department in conjunction with Mr. A. H. Harris, Acting Director of Overseas Transport, is responsible for the necessary work in connection with the export of materials on behalf of the Imperial Government, have been continued in force and greatly extended during the financial year 1915-16.

This service had its origin shortly after the outbreak of war, in the provision of cargoes for empty Admiralty colliers returning from this side of the Atlantic to European ports. Since then it has gradually developed into the present organization under which several thousand tons of material of all kinds are gathered every day from all parts of Canada at the ports of loading and are shipped overseas.

The sailings under this service now average more than one a day. All ships are fine modern vessels of suitable capacity for the Canadian trade, and are allocated by the Admiralty for this service as necessary.

Control of the traffic inland, by rail and otherwise, its reception and storage at the shipping ports, the allocation of cargo to the different ships, and stowage on board of the various materials so as to provide for the maximum use of the tonnage at our disposal comes under the jurisdiction of Mr. Harris and his staff, who have been lent to the Government for this purpose by the Canadian Pacific Railway Company.

The movement and control of the ships are under the direction of the department, who act for the Imperial Government, and are the medium of communication with them on all matters relating to the service.

During the season of navigation on the St. Lawrence the arrival, loading, and despatch of ships proceeded with regularity. The average time of loading being under five days for each ship.

Owing to the unusually severe winter conditions and consequent snow blockades on the railways during February and March, the work was performed under great difficulties during the winter season of navigation.

In view of the greatly increased export business and consequent congestion of shipping at St. John and Halifax, the task of finding accommodation for all vessels required the most careful consideration and constant attention from the port and railway authorities and staff of the transport service. At St. John practically no delays were experienced, but owing to the longer railway haul and less efficient equipment the congestion was more acutely felt at Halifax.

Arrangements have been made with the harbour authorities for the provision of dock accommodation at Montreal, St. John, and Halifax as necessary for the efficient handling of the vessels.

Through the courtesy of the Canadian Pacific Railway authorities, their facilities at all ports have been placed at the disposal of the service. Advantage has been taken of these to a large extent.

All disbursements, with the exception of those on account of bunker coal, on behalf of the service are made in the first instance by that company, who are afterwards reimbursed by the department on presentation of certified claims covering the expenditure incurred on account of each ship.

Contracts for the supply of bunker coal have been arranged for with Canadian firms, and many thousands of tons have been purchased for the use of the various vessels in the service.

Arrangements have been entered into, as necessary, for the docking, repair, and fitting of ships for special purposes and for the supply of such provisions, stores, and gear as are required while the ships are in Canadian ports.

In addition to the ordinary work of the service, more than forty cargoes of timber have been exported from Pacific and Atlantic Coast ports. These aggregate upwards of 125,000,000 feet b.m. in the period under review.

The following statements show the growth of the service, its extent, and the disbursements made on account of the same by the department.

Overseas Tonnage Cleared, 1915-16.

Month.	Port.	Tons.	Total.	Month.	Port.	Tons.	Total.
			Tons.				Tons.
April	St. John, N.B.	23,218		October	Montreal, Que.	54,479	
	Halifax, N.S.	12,089			Charlottetown, P.E.I.	1,385	
			35,307		Vancouver, B.C.	14,173	
May	St. John, N.B.	9,060					70,037
	Montreal, Que.	26,085					
	Halifax, N.S.	5,286		November	Montreal, Que.	90,916	
	New York, U.S.A.	2,900			Vancouver, B.C.	12,282	
			43,331				
							103,198
June	Montreal, Que.	38,859					
			38,859	December	St. John, N.B.	67,484	
					Halifax, N.S.	35,600	
July	Montreal, Que.	32,272					103,084
	Quebec, Que.	3,951					
	Gaspe, Que.	362		January	St. John, N.B.	65,516	
	Vancouver, B.C.	4,602			Halifax, N.S.	30,126	
			41,187		Vancouver, B.C.	9,610	
							105,252
August	Montreal, Que.	38,312					
	St. John, N.S.	7,293		February	St. John, N.B.	79,808	
	Halifax, N.S.	6,636			Halifax, N.S.	51,769	
	Vancouver, B.C.	6,303					131,577
			58,544				
				March	St. John, N.B.	109,225	
September	Montreal, Que.	49,704			Halifax, N.S.	63,692	
	St. John, N.B.	6,587			Esquimalt, B.C.	621	
	Vancouver, B.C.	13,600					173,538
			69,891	Total			973,805

STATEMENT of Disbursements on Account of Overseas Transport Service, April 1, 1915, to March 31, 1916.

Bunker Coal.	Stevedoring, supplies and ships expenses, etc.	Repairs, fittings, alterations, etc.	Total.
$760,993	$674,654	$185,200	$1,620,847

GENERAL.

It is desired to express gratification at the manner in which the staff of the Stores Branch at Ottawa and at the dockyards have performed their duties during the period under review. All have shown by their zealous and painstaking efforts and the constant interest they have taken in the work, their desire to build up an efficient service. At the dockyards, in particular, the work has been strenuous. The routine work of the department has proceeded without friction or delay. Constant unforeseen requirements have arisen and have been dealt with in a manner which reflects great credit on the Naval Store officers and their staffs.

At headquarters the staff, though short of members lent for service temporarily to the dockyards to assist in coping with the greatly increased work there, have been able to deal effectively with all questions arising and have spared no efforts to keep pace with the increased work and responsibility.

The Naval Store officers at Esquimalt and Halifax, and the heads of the purchasing and storekeeping sections at headquarters deserve great credit for their work during the year.

As regards the transportation section of our work, for obvious reasons no details have been entered into. The harmonious relations which have existed between the acting director overseas transport and his staff and the department, and the ready co-operation in all matters relating to the transport service have made the duties of great interest and pleasure. Too much cannot be said of the remarkable work which has been accomplished by Mr. Harris and his staff.

I have the honour to remain, sir,

Your obedient servant,

J. A. WILSON,

Director of Stores.

FISHERIES PROTECTION SERVICE.

DEPARTMENT OF THE NAVAL SERVICE,
OTTAWA, April 1, 1916.

The Deputy Minister,
Department of the Naval Service,
Ottawa.

SIR,—I have the honour to report as follows regarding the Fisheries Protection Service for the fiscal year ending March 31, 1916, as to the number of vessels and men employed, the stations of the different vessels, brief descriptions of the same, and the names of the commanding officers. I have also included extracts from the reports of the various commanding officers to give some idea of the work carried out during the season.

I may add that although it was found necessary to utilize these vessels to a great extent for examination service, mine-sweeping, and other duties in connection with defence, both on the East and West Coasts; at the same time instructions were given to commanding officers to keep a strict lookout for any infraction of the fisheries laws, while primarily occupied with other duties.

The Fisheries Protection Service still consists of ten vessels, although one of these, the *Canada* has been commissioned under the White Ensign for considerably over a year, and will probably continue in the Naval Service until the cessation of hostilities.

NAMES OF VESSELS AND THEIR COMMANDING OFFICERS.

Canada.—Lieut. Commander C. J. Stuart, R.N.R.
Curlew.—W. J. Milne.
Constance.—J. E. Morris.
Gulnare.—Clement Barkhouse.
Petrel.—C. O. McDonald.
Vigilant.—P. C. Robinson.
Galiano.—Lieut. R. M. Pope, R.N.R.
Malaspina.—Holmes Newcomb.
Restless.—Charles Moore.
Newington.—(Chartered)—H. R. Bilton.

C.G.S. "CANADA."

Is a twin-screw steel ship, length 206 feet, beam 25 feet, draught 11 feet 2 inches, registered tonnage 411 tons, speed 16 knots. When on fisheries protection duty she is armed with two 12-pdr. Q.F. and two 3-pdr. Hotchkiss guns. The vessel is electrically lighted throughout, and is fitted with a powerful searchlight. Her complement is sixty officers and men, all told, and she was built by Vickers, Sons & Maxim, Limited, England, in 1904. She is commanded by Lieut.-Commander Charles J. Stuart, R.N.R.

The *Canada* was commissioned under the White Ensign, as above stated, shortly after the outbreak of hostilities, and has not since been engaged in fisheries protection work.

C.G.S. "CURLEW."

Is a composite, single-screw vessel, length 116 feet 3 inches, beam 19 feet 8 inches, draught 11 feet, speed 10¼ knots, and registered tonnage 157·85 tons. Her complement is twenty-two officers and men, all told, and she is commanded by Capt. W. J. Milne.

On April 1, 1915, the ship was at H.M.C. dockyard, Halifax, undergoing repairs, on completion of which she returned to the bay of Fundy station. Here after a few days on naval service she patrolled the fishing grounds off St. John, Grand Manan, Brier island, and Seal island, searching for illegal fishing, also visiting the life-saving stations at Brier and Little Wood islands. On the 31st May a dispute among the salmon fishermen at Gulliver's cove, Nova Scotia, was settled by the commanding officer, and on the 2nd June the United States fishing vessel *Mary A. Osier* was stopped at Black's Harbour for a breach of the Customs laws and turned over to the Customs authorities, who imposed a fine upon the owners; the vessel was later transferred to the British flag.

The early part of June was spent in watching American steam trawlers to prevent fishing in Canadian waters or other breach of the law. During the latter part of the month assistance was given to the overseer of fisheries in obtaining evidence to convict two Canadian fishing boats of engaging in the use of purse seines in the vicinity of Moore's Bank, Brier island, the owners and crews of these vessels being heavily fined.

Part of July, ship was engaged in carrying out orders from headquarters in matters connected with defence, and from August to the end of December she carried out fisheries protection duties except for short periods now and then when called upon for other services. During August the United States smacks fishing for lobsters outside territorial waters near Seal island were carefully watched to prevent fishing within the three-mile limit. In November, Little Wood island and Brier Island life-saving stations were again visited, and on the 14th December the fishing schooner *Albert J. Lutz,* blown ashore at Yarmouth in a gale, was taken off and towed to safety.

Seal Island life-saving station was visited on the 17th December, *Curlew* afterwards leaving for Halifax, where she arrived on the 23rd, and was docked for minor repairs.

She proceeded on naval duties again about the 23rd January, and continued on them until the end of the fiscal year. During the winter she was able to render assistance to the capsized schooner *Pricillia,* and the three-masted schooner *Moama,* which was found anchored in dangerous proximity to the rocks off the Sugar Loaf.

During the year, various foreign vessels, yachts, lobster smacks, and sardine boats in the harbours and territorial waters were boarded, their crew lists and other documents examined, and orders given them to report at the customs house; the fisheries officers were assisted in their duties, and fishing boats searched for illegal gear.

The commanding officer reports very few pollock schooled about Grand Manan during the past season, but that an unusual number remained all summer schooling in the tide rips at Brier island. Early in the season a considerable number of pollock were caught with purse seines outside the territorial waters about Brier island.

C.G.S. "CONSTANCE."

Is a single-screw composite steamer, whose length is 115 feet 6 inches, beam 19 feet 6 inches, draught 11 feet 6 inches, and registered tonnage 125 tons. Her complement is twenty-three officers and men, all told, and she is commanded by Capt. J. E. Morris.

Constance was required for examination service and other defence purposes throughout the spring and summer of 1915; on the 27th October she went into dockyard hands and remained there until the 19th December, when she took a short cruise

in the straits of Northumberland and along the west coast of Cape Breton, before returning to naval duty. On the 28th February she again returned to Halifax for annual refit.

During the year *Constance* steamed 8,874 miles.

C.G.S. "PETREL."

Is a steel, single-screw ship, length 116 feet, beam 22 feet, draught 9 feet, speed 11 knots, and registered tonnage 191 tons. Her complement is twenty-four officers and men, all told. The vessel was commanded by Capt. Clement Barkhouse until the 15th March, after which date Capt. C. O. McDonald took charge of the vessel.

This vessel re-commissioned at Shelburne, N.S., on the 1st April, 1915, and up to the 26th May was on defence duty; she was then placed in dockyard hands for annual refit, on completion of which, about the 18th June, she proceeded to Canso and Cheticamp where the life-saving stations were inspected.

Throughout the remainder of the year she was required for naval purposes, with the exception of a few days spent in inspecting life-saving stations, having boilers cleaned, etc. On the 14th September an unsuccessful effort was made to refloat the schooner *Vera B. Roberts*, stranded on the east end of the island (Pictou), and on 2nd February assistance was rendered to a disabled motor-boat which was found drifting seaward; this boat was towed to Head harbour. The American tern schooner *Andrew Nebbinger*, which grounded at Beaver harbour, was also taken off and towed to safe anchorage.

C.G.S. "GULNARE."

Is a steel, single-screw vessel whose length is 137 feet, beam 20 feet 5 inches, draught 12 feet, registered tonnage 262 tons. Her complement is twenty-five officers and men, all told. This vessel was commanded by Capt. C. T. Knowlton up to 13th October, 1915, when he resigned and the ship was placed under the command of Mr. Smith, first officer. On the 8th January, 1916, Capt. P. C. Robinson was placed in command until relieved by Capt Clement Barkhouse, appointed commanding officer from the 15th March, 1916.

Throughout the year the *Gulnare* was required for naval duties and was not available for fisheries protection service. She steamed 6,894 miles, and was at sea 3,901 hours.

C.G.S. "VIGILANT."

Is a twin-screw steel ship, whose length is 177 feet, beam 22 feet, draught 9 feet 6 inches, registered tonnage 242 tons, and speed 16 knots. She is electrically lighted throughout, and fitted with a powerful searchlight. Her complement is thirty officers and men, all told, and she is commanded by Capt. P. C. Robinson.

On the 1st April, 1915, ship was put into commission at Port Dover, the necessary repairs have been carried out during the winter months, and she at once proceeded to the west end of lake Erie to patrol the fishing grounds. In May the vessel visited the life-saving station at Point Pelee, where the ship's crew assisted the life-saving crew to build a new run-way for launching the life-boat. The latter part of June and the early part of July was spent at Port Colborne, where the electric welding of the boilers was completed. *Vigilant* then proceeded to lake Ontario, where she cruised until 21st July, when she returned to lake Erie. On the 23rd July the Canadian fishing tug *Anko*, adrift in lake Erie, was picked up and towed to Port Dover.

During August and September patrol work was carried out continuously, as American fishermen were actively engaged in illegal fishing in the vicinity of Long Point. The work of patrolling the boundary line was continued until the 18th November, when the vessel proceeded to Port Colborne to meet the Director of the Naval

Service and the Consulting Naval Engineer, the latter examining the engines of the vessel. She then proceeded on patrol duty again until the 7th December, when, ice having begun to form, orders were sent to lay up for the winter, and the ship went into winter quarters at Port Dover on the 17th December.

During the season the usual amount of poaching was attempted. In past years poachers always used buoys on their nets, but this season they adopted the plan of setting nets without the least mark on them, so that they could not be seen and almost all of the nets seized were taken with grapple. The owners of the nets could find them by running from a mark buoy south of line. In all the ship steamed 7,351 miles and seized 1,531 nets, the greatest number of which were sold at auction and the proceeds forwarded to the department.

C.G.S. "MALASPINA."

Is a steel single-screw vessel, whose length is 160 feet, beam 26½ feet, draught 12½ feet, speed 14½ knots, and displacement 700 tons. She is electrically lighted throughout and fitted with a powerful searchlight. Her complement is thirty-three officers and men, all told, and she was built by the Dublin Dockyard Company, Dublin, Ireland, in 1913. She is commanded by Capt. Holmes Newcomb.

In April this vessel was on examination and other services, but in May proceeded to patrol the northern waters on fisheries protection service, returning to Esquimalt on the 6th June; on the 9th June she was inspected by the Director of the Naval Service, afterwards being placed in dry dock for painting and overhaul. From the 6th July to the 22nd September the vessel was on fisheries protection service with the exception of two days when her services were required at Esquimalt. During part of this time the Sea-lion Commission were on board, making investigations. From the 1st October to the 13th December she was cruising in northern waters and then returned to Esquimalt for other service, which continued until the 6th January, 1916. From the 7th January to the 27th February, ship was in the dockyard undergoing repairs, after which she again went on naval service. From the 7th March to the end of the fiscal year *Malaspina* cruised along the coast on combined naval and fisheries protection duties.

C.G.S. "GALIANO."

Is a steel, single-screw vessel, length 160 feet, beam 26½ feet, draught 12½ feet, speed 14½ knots, and displacement 700 tons. She is electrically lighted throughout and fitted with a powerful searchlight. Her complement is thirty-three officers and men, all told, and she was built at Dublin, Ireland, by the Dublin Dockyard Co., in 1913. She is commanded by Lieut. R. M. Pope, R.N.R.

This vessel was in commission on the 1st April, 1915, upon which date she left Union bay and proceeded to Esquimalt. On the 8th April she proceeded on naval duties, and while in the vicinity of Massett also interviewed the fishery overseer, Mr. Harrison. The vessel then returned to Esquimalt via the west coast, arriving on the 17th April. From the 23rd to the 26th April she was utilized in connection with mine-sweeping in company with C.G.S. *Malaspina*. On the 29th April she proceeded north on fisheries protection duty. A schooner sighted back of Discovery Island was found to be the *Liefe* of Seattle, anchored for shelter, but as the weather had then cleared she was ordered to sea. *Galiano* proceeded on patrol until the 2nd May, when orders were received to return to Esquimalt, when she was utilized for other service until the 31st. On the 1st June ship proceeded to Vancouver to meet the Director of Naval Service who remained on board for some days, making a tour of inspection of the life-saving stations; on the 12th June he was landed at Vancouver and ship returned to Esquimalt, proceeding on regular fisheries patrol work on the 19th, and continuing in that service until the 2nd August, when she returned to Esquimalt for other service.

On the 17th August she again proceeded on fisheries duty along the coast of Vancouver island, and on this cruise the American fishing boat *Solano of Seattle* was seized for fishing within territorial limits and handed over to the Chief Inspector of Fisheries at New Westminster. On the 30th August, ship returned to Esquimalt, and on 8th September was placed in drydock for repairs, after which she undertook naval duties until 7th October, when fisheries work was again taken up, and the fleet of boats operating around Beecher bay was visited. About the 20th October *Galiano* proceeded to Alert bay, and cruised on the west coast of Vancouver island until the 30th; weather conditions on this cruise were reported very bad. She then returned to Esquimalt and acted under the orders of the Naval Service officials until 29th February, on which date she went into drydock for refit. Between the 15th and 28th March she again acted under naval orders, afterwards preparing to take up the regular work of the fisheries protection service for the coming year.

During the year sixty-one Canadian and four American vessels were spoken, and thirty-seven places were visited; 8,200 miles were steamed on fisheries work and 2,882 on Naval Service.

C.G.S. "RESTLESS."

Length 71 feet, beam 17 feet, draught 7 feet, is commanded by Capt. Charles Moore.

This vessel has been employed continuously on naval duties at Esquimalt, since the outbreak of war. On the 12th May, 1915, she underwent her annual inspection and refit, returning to duty on the 22nd May. She was again docked on the 22nd November for refit of machinery and boiler, returning to duty on the 3rd December. During the year *Restless* steamed 1,522 knots and was under way 627 hours.

C.G.S. "NEWINGTON."

Is a chartered vessel and has been throughout the past year employed on naval duties, and therefore unavailable for fisheries protection. She is commanded by H. R. Bilton.

I have the honour to be, sir,
Your obedient servant,

C. E. KINGSMILL, *Vice Admiral,*
Director of the Naval Service.

SURVEY OF TIDES AND CURRENTS.

DEPARTMENT OF THE NAVAL SERVICE,
OTTAWA, March 31, 1916.

The Deputy Minister,
Department of the Naval Service,
Ottawa.

SIR,—I have the honour to submit the following report regarding the Survey of Tides and Currents during the twelve months ending March 31, 1916.

Considerable progress has been made in directions which will contribute to the greater accuracy of the tide tables in future years, in addition to the regular work of their preparation and publication, and the maintenance of the tidal stations themselves. Further information on the tides and currents in eastern Canada has now been added to the tide tables; and in several cases the methods of calculation have been improved by revision and the incorporation of additional data to extend the basis from which they are made. The region of Northumberland strait, which has always been a complex one, has now been dealt with comprehensively; which will benefit the harbours there, including the new car ferry terminals, to which special consideration has been given. The currents in Bras d'Or and Grand Narrows were investigated, and their movements brought successfully into relation with the tide tables. Some observations were obtained in the gut of Canso, which at least enable the extremely complex nature of its currents to be definitely understood, and their behaviour to be explained. The tidal observations at the head of the Saguenay have made it possible to give satisfactory tidal data for the whole region, which will be helpful to the growing industries there.

In British Columbia, the time of slack water in additional navigable passes has been reduced to law, and further observations obtained to improve the accuracy of the tables calculated for the principal passes. This will be of benefit to the lumber and coal industries, as well as to general navigation. The data from which the tide tables for Nelson in Hudson bay are calculated, have now been revised throughout, and improved by the incorporation of further observations. Tidal information from new localities in James bay has been obtained, which will enable this survey to furnish fairly good data for any railway terminals in that bay, until more complete observations can be secured.

Further data for mean sea-level as a basis for levelling operations throughout Canada, have been furnished to other departments; especially for work in British Columbia. For the extended levels throughout Prince Edward island which are in progress, the true value of mean sea level at Charlottetown has been supplied. This is based on five complete years of tidal observations; and no such accurate value could be obtained at short notice when important levelling operations are undertaken.

PRINCIPAL TIDAL STATIONS.

There are six principal stations maintained in eastern Canada, from Quebec to the entrances of the gulf of St. Lawrence, and in the bay of Fundy. All these require to be constructed with tide pipes protected by a surrounding air chamber in which heating is supplied, to prevent freezing in winter, and thus to secure a continuous record. In British Columbia there are five principal tidal stations which are main-

tained in continuous operation throughout the year. Various methods are employed to obtain correct time at these stations; at some of them the time being obtained direct from the sun by a meridian instrument; at others a chronometer is used, or a high-grade watch where the time can be checked by telegraph or by wireless signals. The other essential to give value to the observations is a correct datum, which is maintained from year to year by special levelling at the station, and by comparisons made daily by the observer.

The harmonic analysis of these observations made during the past year has been chiefly for the benefit of eastern Canada; as more of this was done for the Pacific coast the year previously. Two complete years of tidal record from Quebec were submitted to analysis, two years from Father Point, two from St. Paul island, and two from Charlottetown; as well as one additional year from Victoria, B.C. This work will improve still further the accuracy of the tide tables for these ports.

FURTHER TIDAL OBSERVATIONS OBTAINED.

The tidal observations during last season were carried out for definite purposes; as the tidal stations were either established for reference, or to obtain data for developments in new regions. They may best be summarized under the various regions where they were taken.

Northumberland Strait.—There were two objects in view here; to complete the eastern end of the strait, along the coast of Cape Breton island, by obtaining observations at Port Hood and Cheticamp; and to obtain data for the car ferry to Prince Edward island, now under construction between cape Tormentine and Carleton head. As a reference station for comparison, a tide gauge was established at Pictou; and the permanent stations at St. Paul island and Charlottetown afforded simultaneous observations for comparative purposes.

This work was started early, at the end of May, to cover the period of the solstice, as the region is known to be under the dominant influence of declination. The engineers in charge of the car ferry works, Mr. F. B. Fripp at cape Tormentine, and Mr. H. M. Downing at Carleton head, were supplied with registering tide gauges, and they kindly undertook to give the observations their supervision, to see that the time was accurately kept, and the datum level for the height of the tide correctly maintained.

The outcome of this work is explained further on, in its general relation to Northumberland strait as a whole; and the grouping of its harbours for tidal accuracy.

Cape Breton; northeast coast.—On this coast the tide gauges were erected at St. Ann harbour, which is developing as a shipping port; and at Sydney, as the only observations so far obtained there were for one month in 1901. The time of the tide at these harbours is referred to St. Paul island; and the difference in time as found for Sydney in 1901 by a special method for dealing with so short a period of observation, was only modified three minutes by the result of the new observations. These further observations will have other uses, however, in connection with tide levels, etc.

By comparison of the new results with the former observations of 1901 at Neil harbour, values for Ingonish were also obtained, based on difference of establishment, which will be quite satisfactory.

Saguenay region.—The railway from Chicoutimi to Bagotville in Ha Ha bay at the head of the Saguenay, and the shipping facilities which are under construction at Bagotville, are indications of the growing importance of this region.

The only observations previously available at Chicoutimi were taken in 1897 for two months; but they were sufficient to show the remarkable similarity of the tide there to Quebec. The extended observations of last season will now give reliable differences with Quebec for high and low water; and will make the tide tables, which

are computed locally, as accurate as our published tables. The tide scale for height in the observations was set accurately in correspondence with the low-water datum established by the Public Works Department. The rise of the tide as given on the chart, proved to be erroneous; probably owing to misunderstanding regarding the change during the freshet period in the river. The actual rise of the tide has now been ascertained, with distinction from the freshet levels.

At Bagotville, which is at the true head of the Saguenay inlet, the tide was found to be in correspondence with Father Point on the Lower St. Lawrence. This will enable the tide throughout the whole of the Saguenay to be known; as the new observations show that the difference in the time of the tide from Tadoussac to Bagotville is only twelve minutes. So small a difference can readily be allowed for, in the navigation of the Saguenay, and by the industries along it. The new information obtained will thus apply to the whole region; and the tide is an important matter, as the rise is from 17 to 18 feet at spring tides.

Lower St. Lawrence.—Observations were obtained last season by co-operation with the Hydrographic Survey, at Grand Mechins and Godbout; this latter place being practically the same as Point des Monts, the true dividing point between the gulf of St. Lawrence and the estuary. The establishments, which indicate the time of the tide, were seriously out until recently, for the region between Father Point and Anticosti; but sufficient observations have been secured in recent years to enable a general revision to be made.

Tide levels at the summer stations.—Wherever a low-water datum existed, it was made use of for the new observations. At cape Tormentine and Carleton head, the established datums were utilized for reference; and a low-water datum at Pictou, which was determined by this survey in 1902, has been used for all observations since obtained. At Sydney, the masonry building on which the Tidal Survey bench-mark of 1901 was placed, was demolished; but it was found possible to recover and maintain the same levels as in the former observations. At Port Hood, Cheticamp, and St. Ann harbour, new bench-marks were established to which the tide levels were referred. At Chicoutimi and Bagotville, the tide scales for the observations were set accurately in correspondence with the original low-water datums established by the Public Works Department and by the Chicoutimi and St. Alphonse Railway, which are defined by existing bench-marks.

By thus fixing the tide levels permanently with reference to bench-marks, the observations are much enhanced in value; as they become available in harbour improvements or dredging for which the levels of high and low water at extreme tides are of importance. On the other hand, if this trouble is not taken, the tide levels are quite lost after a few years. Their value is evident, as the levels must be known in advance, when any wharf repairs of consequence or other harbour improvements are undertaken.

Pacific coast.—In 1914, when the moon still maintained as great a range in declination as it attains during the 19-year cycle, a tide gauge was established at Caulfeilds, the pilot station near point Atkinson, in the strait of Georgia. The tide of the open strait is thus being obtained, which is practically identical with the original station at Sand Heads; and the observations will be maintained for two complete years to supplement the Sand Heads series. A truly corresponding datum level for reference has also been determined.

These observations at Caulfeilds were also utilized for comparison with the time of slack water in the passes which were investigated in 1914 and 1915. It is known that the time of the tide at Caulfeilds does not differ more than five minutes with Sand Heads; and a comparison with the simultaneous tidal record there, is more steadily accurate than with the predicted times at Sand Heads. The Caulfeilds station is thus serving a double purpose.

Observations were obtained at Ganges harbour last season; an important shipping point for produce in the Gulf islands. The original Admiralty low-water datum was utilized for the e observations, and accurate time was used.

Two tide gauges were lent to the Hydrographic Survey for use on this coast; and in this way observations have been obtained at Shingle bay at the mouth of Skidgate inlet to compare the open tide with the range within the inlet at Queen Charlotte city. This comparison was continued at the two places simultaneously for over two months. Further tidal record was also obtained at Pacofi in the Queen Charlotte islands. The object of these observations is primarily for the reduction of soundings in the hydrographic work, and the registering gauges save much trouble and expense in obtaining this information; while at the same time the record obtained is of value to this survey.

The observations at Nelson in the seasons of 1911, 1912, and 1913, consisted of readings on a staff or fixed scale, taken by the Hydrographic Survey, which were afterwards plotted as tide curves. The various standards of time used were local, eastern standard and central standard, this last being the correct standard time for Nelson. By careful reduction, by which the observations were brought to the same time standard and also to a uniform datum, good results were obtained.

In 1913, two registering tide gauges were supplied to the Railways and Canals Department, there being thus a duplicate instrument in case of accident; and Mr. D. W. McLachlan the engineer in charge at Nelson, kindly undertook the supervision of the observations. There was much difficulty in obtaining correct time, however; so that when the observations of 1914 were reduced, it was found that they could only be utilized for the difference of time between high and low water, which is one of the essential factors that the observations afford. Now that the wireless station is established, the difficulty in obtaining correct time has been overcome. The observations of 1915, in charge of Mr. A. Sutherland, the wireless operator, have thus been entirely satisfactory, except for interruptions occasioned by carelessness during construction. It has always been found that during construction no respect is paid to a tide gauge; and filling will be thrown around its column, choking it up, or a derrick arm will strike it and destroy it; although the whole design of the works is based on the data for tide levels which a tide gauge affords.

In James bay, further observations have been obtained by co-operation with the Hydrographic Survey and the Timiskaming and Northern Ontario Railway, to whom tide gauges were supplied. The observations thus obtained were taken at Strutton island off the mouth of Rupert bay; during two months; and at Moose river, both in the estuary and at Ship sands off its mouth. It is in these vicinities that any railway to James bay is likely to have its terminus.

INVESTIGATION OF THE CURRENTS.

Pacific coast.—Of the four passages between the Gulf Islands, Active pass is the most important, as it lies on the main route between Vancouver and Victoria. Next to this is Porlier pass, with a heavy freight traffic; and for these two, complete tables of slack water are calculated and published in the Tide Tables. These two are now utilized as standard passes to which others in this region are referred. The mariner thus finds the time of slack water in other passes by applying a difference of time to the slack-water tables, instead of taking a difference with the time of the tide. This is quite as convenient, and the result is more closely accurate, for the reasons explained in the Tide Tables.

Observations begun in the previous season in Dodd narrows, were continued throughout the winter until April, 1915. The observer was then moved to Gabriola pass, where observations were obtained for six months, from May to October. These passes, though accommodating a large local traffic, have uninhabited shores; and it was

necessary to erect a temporary house for the observer and his cook, and to provide a complete outfit and supplies. For comparison with these passes, simultaneous observations were continued in Porlier pass; and to make double use of these observations, the tidal stantions at Caulfeilds was maintained, which gives a tidal record for the strait of Georgia; as the comparison with this tidal record affords an extended basis from which to calculate slack water in Porlier pass itself.

From these observations, and the resulting comparisons for extended periods, differences of time for high-water and low-water slack were obtained for Dodd narrows and Gabriola pass, which enable the time of slack water to be accurately known in them. This is the information chiefly desired, as transportation is largely carried on by towing, which must be timed to go through such passes at slack water.

Another important region for which observations have been obtained, is Seymour inlet; which runs into the mainland opposite the northern end of Vancouver island. The object in view is to obtain the time of slack water in the narrow opening that leads into Seymour island itself, which is 35 miles long; together with Belize inlet, Federick, Nugent, Mereworth, and Alison sounds, which open off it. The total area of these inlets and sounds is so large that the rise of the tide within them is only 6 to 8 feet; while in the open the rise is 14 feet on the average. Such a difference of level causes the tide to pour through in a torrent, as it rises and falls. The region around this group of inlets and sounds is an important lumbering area; but the entrance is uninhabited, and there is no regular means of communication. The importance of knowing the time of slack water is very evident, as any attempt to tow lumber out at any other stage of the tide necessarily results in wreckage.

The difficulty of installing an observer in a suitable spot was overcome; and correct time was obtained with a chronometer. Observations of the time of slack water, which is brief and definite, were secured for six and one-half months in 1915. To obtain the time of high and low water for comparison, a tide gauge was erected at Wadhams in Rivers inlet, only 25 miles distant. It was not at all certain, however, that the time of slack water would have any constant relation to the local tide; and considerable investigation was required before a satisfactory result could be obtained from the observations.

Great Bras d'Or and Grand Narrows.—The traffic through these narrows is partly local and partly on the through line from Halifax to Sydney; as many steamers prefer the inside route by way of the Bras d'Or lakes.

These lakes are connected with the ocean by the Great and Little Bras d'Or which communicate with the first expanse; and this again communicates through Grand Narrows with a second and larger expanse. The rise of the tide in the open is 3 to 5 feet, but the lakes have not time to fill up in the tidal period, and their variation in level is only about 6 inches.

The time of slack water, at the turn of the current, was observed at the entrance to the Great Bras d'Or during daylight for three months in 1915; and it was obtained at Grand Narrows by means of a registering apparatus, day and night, for five months. This apparatus was especially designed, and worked electrically. At both localities, arrangements were made to obtain accurate time for the observations.

The main object in view is to obtain from these observations a time difference between the turn of the current and high or low water at one of the tidal stations for which Tide Tables are published. The chief difficulty is to find such a difference which is reasonably constant; so that the mariner can know which way the current is running, by simply applying the difference to the time of the tide in the Tide Tables. If the difference is not constant, the result would be misleading.

As the rise and fall in these lakes is so slight, no relation is obtainable with local high water. Also, as the level is so nearly constant, the turn of the current coincides approximately with half-tide in the open. Preliminary trials showed the variation in

the difference between current and tide to be about 1¾ hour early or late, in an irregular way. This shows the amount of error that may possibly result from the use of a constant difference; which it is the object of the investigation to reduce.

The first series of trials was made for the mouth of the Great Bras d'Or, which was likely to be less complex than Grand Narrows. Each trial comparison between current and tide was based on two or three weeks of observation. The leading trials made and the general procedure were as follows:—

The difference between high and low water at St. Paul island and the time of slack water, was not very satisfactory; and the difference with Pictou was even more variable, which pointed to an earlier tide as being better than a later one. Also, it is now known that in Northumberland strait, the current accords best with the tide in the two opposite directions across the gulf. Combining these ideas, a trial was made with the previous high water at Halifax for the one slack, and the previous low water at Father Point for the other slack. This gave an improvement, and the relation with Father Point was remarkably constant, the greatest variation being only thirty-three minutes early or late. The difference itself was large and unwieldy, however, being about 10½ hours, yet showing such constancy. The outstanding variation is largely due to a strong alternation in the successive differences, when the moon is in high declination.

Further trials were therefore made with the following low and high water at St. Paul island instead of the previous ones. As this brought the opposite tides into the comparison, it reduced the troublesome alternation to less than one-fourth, and made the general variation as low as in the result obtained from the tides in the opposite directions, as above indicated. As it had also the advantage of being simpler in its application, it was accepted as the best relation obtainable for slack water.

With the help of these indications, a series of comparisons was then made with slack water at Grand Narrows, in a similar way. Comparisons with St. Paul island, Halifax, and Father Point showed a variation of over one hour, early or late, with little to choose between them. Another reasonable supposition was that the mid-time between high and low water ought better to agree with the time of slack; but the result showed no improvement as regards variation. Also, as slack at Grand Narrows is later than at the mouth of Bras d'Or, this seemed to indicate a comparison with a place where the tide itself was later. On making trial with Pictou and Charlottetown accordingly, this latter proved the best reference station that could be found; although the variation still amounted to nearly an hour, early or late, at the extreme which occurs occasionally.

Instead of taking the mid-time of the tide for comparison, the reverse method was then tried for Grand Narrows; namely, a comparison with the mid-time between slacks, representing the time of maximum velocity of the current. This method had proved eminently successful in Northumberland strait. Trials with Pictou and St. Paul island on the basis showed that the variation with the tide was only thirty-five to forty minutes early and late; thus reducing the variation to less than two-thirds of its amount in the best result obtainable in the comparison with the time of slack water.

When this method was tried for the mouth of Bras d'Or, it also showed a marked improvement; the best results being given by the relation with the previous high water at Halifax and the previous low water at St. Paul island. The variation was thus reduced to little over thirty minutes, early or late.

This method should be the most serviceable to the mariner, as it will enable him to find readily the time at which the current is strongest in one direction or the other, and thus to judge which way he will find it running at any given time. Any error in the exact time of maximum strength is also of comparatively little consequence for his purpose, whereas if the time of slack water were out, because of its variation, he might find the current already running in the opposite direction to what he expected.

The final outcome of these investigations was to obtain differences of time with the Tide Tables which give the time of the "middle of flood" and the "middle of ebb" in these passages. For the Great Bras d'Or the differences apply to high water at Halifax and low water at St. Paul island; and for Grand Narrows they apply to high water at St. Paul island and low water at Pictou. The results in figures will be given in the next Tide Tables published. This middle moment in the run of the tidal streams will enable it to be known whether the flood or the ebb is running, which is the matter of chief practical importance.

The gut of Canso.—This strait connects two regions in which the tide is of two distinct types, although the range is nearly the same; being 4 and 4½ feet at its two ends at spring tides. At the northern end, diurnal inequality is highly developed, and one tide in the day may be reduced to a level stand for ten or twelve hours. At the southern end, the tide is of the ordinary Atlantic type, and the inequality is scarcely apparent. Also, as the time of high water is not simultaneous at the two ends of the gut, the tidal streams are necessarily complex in their time relations; while in strength they often attain 3½ knots. This general explanation has been given in the Tide Tables since 1906.

Observations of the turn of the current were obtained for nearly three months in 1915, by the captain of the car ferry *Scotia,* assisted by his first officer. These included notes every two or three hours during the night, so that the observations were fairly continuous. A digest of these observations shows that the proximate influence of tide levels may be ignored, and the behaviour of the current brought into direct relation with the declination of the moon, which is the primary cause of the diurnal inequality in the tide.

A current which is under the influence of declination, should have an equal run in the two directions when the moon is on the equator. But in this case, it was found that the runs never became equal; and this led to the discovery of a dominant flow southward, represented by an average of 2½ hours longer flow in that direction during the course of the tidal period, or half lunar day. Consequently, when the moon is on the equator, and the flow is as nearly equal in the two directions as it becomes, the flood runs for 4 hours 55 minutes northward, and the ebb for 7 hours 30 minutes southward, on the average during the tidal period.

It was also found that at the extreme of the moon's position, when it is at its maximum declination north or south of the equator, the current turns only once in the day instead of twice, as tidal streams usually do. The two runs are also made unequal, as before, by the dominant flow southward; and the actual periods become ten hours northward and fifteen hours southward, as an approximate average.

The period in which these changes take place, is the declination-month of 27¼ days, in which the moon crosses the equator twice, going north and south. When the moon is near the equator, the behaviour resembles an ordinary tidal stream, turning twice a day, but in the course of the next six or eight days, two of the runs in the day increase in length till the other two are reduced to a period of weak current and then disappear altogether, leaving only one run in each direction by the time the moon reaches its maximum declination north or south. From then on, the transformation is reversed for six or eight days, until the moon again crosses the equator. Throughout these changes,, there is an over-balance in favour of the southward direction as explained.

Under these conditions, it is only possible for the current to have a definite relation to the time of the tide when the moon is near the equator; that is, during two groups of about three days each which occur twice in the declination-month. It is not necessary that the relation should be with the tide in the gut itself; as the observations so far obtained appear to show that the best relations to the tide are with high water in Northumberland strait and low water in the Atlantic; or possibly with the tide

at St. Paul island, which is exactly opposite the gut at the other end of Cape Breton island; and as the tide is there intermediate in character between the two ends of the gut, it may thus average the inequalities.

The greater flow southward in the gut of Canso, appears to correspond with the constant outward flow from the gulf of St. Lawrence towards the Atlantic, which takes place around the north end of Cape Breton island.

The effect of the wind upon the current is chiefly due to the raising of the water level during north and northwest gales, in the angle of the gulf of St. Lawrence at the northern end of the gut. The flow in the southward direction is then increased, or prolonged to some extent. Winds from the opposite quarter have less effect. The disturbance is also more apparent if a storm occurs while the current is in a transition state, when there would be normally long periods of slack. Far too much has been attributed to wind influence, however; as the main features in the behaviour of the current have astronomical causes; and the strongest winds in the summer season are unable to obliterate these features.

IMPROVED METHOD OF CALCULATION.

After the tide tables for the six principal harbours on each coast have been calculated by means of the tidal constants which result from harmonic analysis, there are next eight tables for secondary localities or for the time of slack water and the turn of tidal streams, that require to be computed; besides the tide tables for Nelson in Hudson bay, and three tables required for the summer season. These computations are made by means of differences with the ports of reference, which usually vary in a more or less complex manner. The values used are improved upon, when further observations are obtained as a basis; or it may even be possible to modify the system of computation itself if any improved method can be discovered.

Seymour Narrows.—A very large traffic passes through these narrows; not only the Canadian coasting steamers, but also the United States trade to Alaska, although the shores are uninhabited. Since the first observations of slack water were obtained by the United States Coast Survey in 1897, two additional seasons of observation have been secured by this survey, making a total of twenty-two months in all.

The calculation of the time of slack water is based on three principles already arrived at: (1) the tide on these coasts is of the declination type, and the variations to be allowed for, are in accord with the declination of the moon, and the declination of the sun during the year; (2) the time of slack water is quite out of relation with the local tide, but accords with the tide of the open ocean, outside Vancouver island, the best reference station for this tide is Port Simpson; (3) the best relation with Port Simpson is with the previous tide for high-water slack, and with the following tide for low-water slack.

For high-water slack, the difference with the time of high-water is fairly constant, although evidently subject to an annual variation with the declination of the sun. The problem was to determine this variation from observations in the summer half of the year, when the values are all high. This has been done by a method which is substantially that of anamorphic coordinates. In this way, the variation of twenty-two minutes between the two solstices is allowed for in calculating the tables of slack water for 1916 and onward.

For low-water slack, the differences with the time of the tide show a marked alternation with the upper and lower transits of the moon. Up to the present time, this has been allowed for by basing the difference upon the large tides and half tides at the port of reference; but the result was not entirely satisfactory. In the summer, an opportunity was obtained to investigate the matter afresh, during a period of quiet days after the tidal stations for the season were put in running order. After tabulating all the observations in the three years in accordance with the moon's declination, with

distinction of the transits, an entirely satisfactory result was obtained; and its unusual character brought to light the physical reason why the relation with the large and half tides as formerly used, had given rise to uncertainty. The chief difficulty in arriving at true values was due to the night observations being wanting; as slack water can only be observed in the day time. On this account, when the alternation is strong, the high values are definitely found from a large number of observations, but the low values from very few. A check upon them was obtained, however, by making their difference the same as from the high values to the average, which was found independently. The actual alternation in the differences for successive low-water slacks may amount to a little over an hour. To apply this method of calculation, a complicated technique is required; partly because of the unusual physical characteristics already referred to, and partly because of the adjustments required which vary from month to month according to the position of perigee in relation to declination. With these precautions, the method itself gives excellent results.

Seymour inlet.—Observations of the time of slack water in the entrance to this inlet, which opens off Queen Charlotte sound, were obtained during last season; but it proved to be a problem of unusual difficulty to find any definite relation between slack water and the time of the tide. There is no constant relation with the tide in the open sound, in the vicinity; and a comparison with Port Simpson showed that if the time of slack water were obtained by a constant difference of time with the Port Simpson tide tables, the result might be in error by a whole hour, early or late, when the moon is in high declination.

An extended investigation was therefore undertaken, based upon the interval of time between successive slack waters; this interval alternating from ten hours to fifteen hours in the case of low water, when the moon is in high declination. The intervals between successive tides at all the principal stations were worked out for comparison, under corresponding conditions; in the endeavour to find a tidal station where the behaviour is similar. It was eventually found that the slack at high water could be referred to high water at Clayoquot; but in the case of the slack at low water, the alternation was greater than at Port Simpson and less than at Sand Heads. From this indication and an exhaustive series of comparisons, the method of finding the time of low-water slack was reduced to the following rule: Take the time of high water at Port Simpson and the next following high water at Sand Heads, which is from two to five hours later; and find the mid-time between the two. From this mid-time, subtract six hours five minutes. The result will be the time of low-water slack.

Porlier Pass.—It has recently been discovered that the time of slack water in one pass can be referred to another pass with a better result than can be obtained by referring it directly to the time of the tide. In this way, Porlier pass has now become a standard pass to which slack water in Dodd narrows and Gabriola pass are referred by difference of time. The simultaneous observations required in obtaining these differences, have afforded eighteen additional months of observations in Porlier pass itself. With the former observations obtained in 1906 and 1907, there are now in all thirty-six months to utilize as a basis for the calculation of the slack-water tables for this pass.

As slack water in some of the passes is found by difference of time from Active pass, as well as from Porlier pass, it is evidently desirable to improve the method of calculation for these passes themselves, when so long a series of observations is now available. The new relations discovered recently, gave hope of this; as in the straits and narrows off the gulf of St. Lawrence, it is found that the turn of the current may correspond with high water in the one direction and low water in the other. The investigations for Seymour inlet also threw new light on the relation of slack water to the tide at the various stations, as indicated by the intervals between successive tides. The experience of recent years also makes it clear that slack water may not have any definite relation to the time of the local tide.

These new methods were applied to slack water in Active and Porlier passes, respectively. The investigations need not be detailed, as the methods themselves have already been explained. The result eventually found was that a marked improvement in the calculations can be gained by referring high-water slack in these passes to the tide of the open Pacific at Clayoquot, whereas low-water slack is in good accord with the tide in the strait of Georgia. The need of treating the large and half tides separately in the calculations has also been looked into, as well as the question of annual variation in the values. It is satisfactory that the calculations for these important passes to which others are referred, will now be placed on the best possible basis.

Nelson, Hudson bay.—At Nelson, the time of high water is calculated from a port of reference, and the time of low water is derived from high water by means of the duration of the fall of the tide. This duration varies throughout the course of the month, and the series of values required for calculation purposes has been improved by utilizing the further observations of 1914 and 1915, giving in all a basis of five seasons' observations for this series.

The height of the tide is calculated with direct relation to the moon. It has been a difficult matter to maintain a uniform datum at Nelson, from which the height is measured; and as the low-water datum of the chart was altered besides, it was advisable to revise the values for height throughout. During four seasons, the observations for this purpose which could be correctly reduced to datum, amounted to nearly eleven and one-half months in all. The variation in height from springs to neaps, required a correction in the period of the anomalistic month for the moon's distance; as the change in height from this cause amounts to 1·80 feet. There was much difficulty in arriving at this correction, owing to the short series of observations in each season. When determined satisfactorily, by methods which it would be too technical to enter upon, the correction was applied to the heights as observed, and the main variation determined during the course of the synodic month, from springs to neaps. This main series, and the correction which over-runs it in another period, enable the height of tide at Nelson to be calculated directly from the moon's position.

It may be considered as quite an achievement to produce tide tables by such methods for a port in an entirely new region. These tide tables have been published since 1914, with gradual improvement; and they now include complete data for the tide in Hudson strait, which have been deduced from early observations as explained in last year's report.

Northumberland strait.—In this strait, the tide undergoes rapid modification; but with further observations in recent years and a careful revision of method, all the harbours along the strait have now been brought into the best relations possible, with the ports of reference.

Pictou, because of its central position in the strait, was early chosen as a secondary port of reference, to equalize the variation in the two directions. The observations of last season have made clear that the whole area from the west shore of Cape Breton island to Baie Verte can be referred to it. The tide at Pictou was formerly calculated from St. Paul island, but the variations were complex; and since Charlottetown was made a principal station, Pictou is calculated from it by means of two series of variable differences, for high water and low water respectively, in the period of the lunar month. The basis for these two series has now been extended to include six seasons of observation, between 1901 and 1915, making twenty-eight months in all, of simultaneous comparison. This will afford a very satisfactory basis for future calculation.

In the western end of Northumberland strait, from cape Tormentine to the west point of Prince Edward island, the tide becomes very complex, with actual change in type from one harbour to another. Careful investigation and many comparisons show that this area can best be referred to Charlottetown; as the diurnal inequality is quite highly developed there as in Hillsborough bay. The time relations with Charlotte-

town for Summerside, cape Tormentine, and Carleton head opposite, are especially satisfactory; and reliable data for the new car ferry terminals will thus be available.

Rise of the Tide.—In most regions, both in eastern Canada and on the Pacific coast, it is possible to give values for the rise of the tide at springs and neaps, in the usual way. But in some regions, notably in the strait of Georgia, the tide is of such a type that the springs and neaps can no longer be distinguished. So far, a mean value for the rise of the tide has been given in the tide tables; but this is not as serviceable practically as might be desired.

A special reduction was therefore undertaken to obtain a better result. It was first necessary to correlate at the various localities, the datum levels from which the rise is measured; and in doing so, proportionate variations had to be allowed for, which were quite complex owing to the special character of low water. The amount of rise was then made truly comparable by computing for each locality the difference of level between the low-water datum as determined, and the average high water. In this average it was necessary to allow with special care for annual variation as well as for the monthly variations, to obtain comparable results. Without entering upon technicalities, it will suffice to state that as a result ratios were arrived at, which will enable the mariner to know the rise at any locality by simply applying a percentage to the height of the tide as given in the tide tables. The whole region from Victoria and Vancouver to the head of the strait of Georgia, and onward to Queen Charlotte sound, has thus been dealt with consistently.

TIDE LEVELS AND OTHER INFORMATION SUPPLIED.

It is evident that the ultimate basis for extended levelling must be mean sea-level, which can only be obtained from tidal observations. This was pointed out before the geodetic levelling of recent years was commenced; and the foresight in this matter from the beginning, will be seen from a publication by the Tidal Survey, issued in 1903:—

> "This survey, as a branch under the Ministry of Marine, has for its primary object the determination of the time-relations of the tide, and the turn of tidal currents, for the information of mariners. The determination of levels is thus quite collateral to the object which the department has in view; but it was very evident that a large amount of important information could be secured by taking more complete levels, and by establishing bench-marks at all tidal stations at which recording instruments were placed, even for a few months. The additional work involved was therefore undertaken from the outset. Eventually as the observations are continued, the value of mean sea level, extreme tide levels, and other factors of importance, are determined with reference to this bench-mark. Although there is as yet no general system of levels in Canada, these results are of value locally in the meantime; and they also furnish a basis for any more extended geodetic levelling which may be undertaken."

This foresight is now bearing fruit, in furnishing the basis referred to; and it is gratifying to report that another province has been placed in a satisfactory position, in regard to its levels, during the year. Extended levels are being taken throughout Prince Edward island along its railway system; and as a basis for these, the survey was able to furnish to the engineers of the Intercolonial railway an accurate determination of mean sea-level at Charlottetown, referred to a bench-mark there. The determination is made from five complete years of tidal observation, deduced from the height of the tide at every hour, day and night; the value for each of these years being thus the average of 8,760 individual measurements. In addition to the basis, tide levels were also supplied for Summerside and Georgetown, derived from tidal observations in those harbours.

For the long line of levels extending to Hudson bay, the Topographical Surveys Branch of the Interior Department desired to have a value for mean sea-level at Nelson, to fix the elevation of the extremity of the line. The tidal observations there are much broken; as they have been obtained from three different sources, taken for different purposes; but this survey has taken much trouble to reduce them all to one uniform datum, as otherwise they would be valueless for this object. The determination of mean sea-level was made from three priods of one lunar month each, in different years; and as the values in the individual months differ only by 0·07 foot, or less than an inch, the result is more closely correct than the best levelling can give on a distance of 200 or 300 miles. The resulting value for mean sea level, as furnished to the Topographical Surveys Branch, was given with reference to the permanent bench-mark on an anchor bolt in masonry, and also with reference to the low-water datum as adopted for the charts by the Hydrographic Survey.

There has been considerable correspondence rgarding the levels in British Columbia; to correlate the Vancouver city datum with the tide levels, to ascertain the relation of the harbour datum at New Westminster with the low-water datum in the open, and so forth. Information on the levels has also been requested in connection with deep borings and dredging, or to establish a low-water datum.

The new information obtained during the season by this survey, has been communicated to the Hydrographer of the British Navy, when it affords improvement to the data for Canada, which are published with the British Tide Tables. Advance information is often communicated also to railways and manufacturing companies, to which the tide is of importance, for their convenience before it can be issued in the Tide Tables. The information afforded to city and harbour engineers and to other surveys, much of which requires to be worked out from some special point of view, may serve to show the value of this survey to others, in addition to its primary service to navigation.

PUBLICATIONS.

The Tide Tables containing tidal information for Canada are published in two sets, one for the eastern coasts, of which 8,000 are printed, and the other for the Pacific coast which has now been increased to an issue of 15,000. For eastern Canada two abridged editions are issued, of pocket size, one for Quebec and the St. Lawrence and the other for St. John, N.B., and the bay of Fundy. These two additions now amount to 18,000. There is also an abridged edition issued for the southern part of British Columbia, where there is a large demand for local tide tables for Vancouver, the Fraser river, and the passes in that vicinity.

This edition was issued for the first time in 1915 and has met with a very wide circulation, so much so that the issue now requires to be increased to 10,000. It is found very convenient and serviceable by all classes, from pilots to fishermen and for motor-boat traffic, as explained in the last report. The Tide Tables on the Pacific coast are essential to the lumbering industry and the coal trade as well as to the ordinary navigation. The tables are of much use to fishermen, as the best catch is often taken during some special stage of the tide.

The Tide Tables are supplied without charge to all the steamship companies and and to all applicants for them. They are largely circulated through the agencies of the Marine Department, Customs offices, pilot associations, and shipping offices. A large proportion of them are mailed individually, and many are sent in reply to requests received.

The Tide Tables for eight important harbours in eastern Canada and the Pacific coast are now republished by the British Admiralty; together with all new information obtained. Tidal information for the St. Lawrence is furnished annually to the Department of Marine and Fisheries for their publication on the St. Lawrence Ship Channel, for the use of pilots. Tidal information for the summer season is also sent

locally to Tadoussac, Little Metis, and Murray Bay for convenience to those frequenting these summer resorts. Advance information, based on the observations of last season, has also been forwarded to the shipping interests and manufacturers in Cape Breton and the Saguenay region. In those various ways the information obtained by this survey has a very wide circulation and should reach all who require it.

STAFF.

The staff of this survey for the office and field work, comprises only four in addition to the superintendent; together with the outside tidal observers, who number six in eastern Canada and five on the Pacific coast at the permanent tidal stations. In addition to these, several others are employed locally in the summer season in the observation of tides or currents; and there are engineers as well as other surveys, who gave their co-operation in obtaining observations in the more remote regions.

In the field work last season, Mr. S. C. Hayden supervised the observations of the currents in the passes of British Columbia, fitting out the observers and also inspecting the tidal stations on that coast. In eastern Canada, Mr. H. W. Jones supervised the erection of several summer stations in the Cape Breton region; as well as the current observations already described, in the narrows leading to the Bras d'Or lakes. He also inspected those of the principal stations which required it. In the Saguenay region, Mr. R. B. Lee assisted the superintendent in the establishment of tide gauges and levelling.

During the summer season, the tidal record from the principal stations accumulates and requires attention in the winter. The number of months is thus short in which the reduction of this record and its preparation for analysis has to be made. The observations at the summer stations have also to be dealt with; and the slack water observations in the passes and narrows require to be brought to practical shape for calculation purposes, as explained in the earlier part of this report. There is also the calculation and publication of five sets of Tide Tables to be carried out during the winter months. This work is done by the same staff as above mentioned; with the assistance of Miss N. R. Carter in the reduction, as well as acting as stenographer in carrying on the correspondence.

I have the honour to be, sir,
Your obedient servant,

W. BELL DAWSON,
Superintendent of Tidal Surveys.

HYDROGRAPHIC SURVEY.

DEPARTMENT OF THE NAVAL SERVICE,
OTTAWA, March 28, 1916.

The Deputy Minister,
Department of Naval Service,
Ottawa.

SIR,—I have the honour to submit a report on the work of the Hydrographic Survey during the fiscal year 1915-16.

During the year no additions were made to the equipment of the survey, but what we have has been kept in first-class condition.

Due to hostilities in Europe the staff has been considerably reduced, Messrs. Knight, Turner, Lawson, Delaute, MacDonald, Miller, and Smith having volunteered and been accepted for service.

The following parties were in the field during the summer of 1915:—

1st.—One party, with the steamer *Acadia,* under Captain Anderson, working in the approach to Halifax harbour.

2nd.—One party, with the steamer *Lillooet,* under Lt.-Commander P. C. Musgrove, R.N., working around Queen Charlotte islands, British Columbia.

3rd.—One party, with the steamer *Cartier,* in command of Mr. Charles Savary, working in the St. Lawrence river, between Father point, pointe des Monts and cape Chat.

4th.—One party, with the steamer *Bayfield,* in charge of Mr. G. A. Bachand, working in lake Ontario.

5th.—One party, with the steamer *La Canadienne,* under Mr. H. D. Parizeau, working in lake Superior.

6th.—A party, using a small chartered schooner, under Mr. Paul Jobin, working in James bay.

7th.—A party looking after the automatic gauges on the Great Lakes and St. Lawrence river.

ATLANTIC COAST SURVEY.

Owing to many complaints, both from officers of the Royal Navy and of the Merchant Marine, about the inaccuracy of soundings in the approach to Halifax harbour, it was decided to undertake an accurate survey of off-shore conditions and the area embraced between Sambro island on the west and Egg island on the east, and extending from 15 to 20 miles off-shore was carefully examined. No shoals were discovered, but the contour lines are now closely charted and show very slight variations from the old ones.

In this work, 1,400 miles of linear sounding, from the deck of the ship, over an area of 700 square miles was done. Observations for latitude and longitude were taken in Findley cove, McNab island, and Day cove, Ship harbour. The latter was connected by triangulation with the positions in Halifax harbour, and a good agreement obtained. The longitudes were obtained by the use of five chronometers and through wireless time signals received from Arlington, Va.

For the triangulation bases were measured at the entrance to Halifax harbour and on the beach inside of Egg island.

The improvements in Halifax harbour and vicinity, made since the issue of Admiralty Chart No. 311, have been carefully surveyed and will be submitted to the Admiralty for the correction and improvement of the chart of the harbour.

A Canadian chart will be issued showing the result of the offshore work during the past summer.

During the season, considerable work, having no relation to ordinary hydrographic work, was done by this party, such as the establishment of a measured mile in Bedford basin, and detailed examination of the narrow channels of the entrance, for the information of the dockyard officials.

Two cruises, under the direction of Dr. Johan Hjort, were made between Halifax and Newfoundland for the purpose of obtaining offshore soundings and other information relating to an oceanographical study of that portion of the Atlantic ocean in connection with the fisheries of the Dominion. At the close of the surveying season a similar cruise was undertaken by Captain Anderson, acting under instructions from Dr. Hjort.

The *Acadia* arrived at Halifax on the 25th November and was laid up there, the surveying staff returning to Ottawa.

The surveying staff consisted of Captain Anderson and Messrs. L. C. Prittie, J. L. Foreman, and R. J. Fraser. Captain Anderson reports very favourably of his staff and Captain Robson, they having rendered him every assistance in their power.

I regret to say that considerable difficulty was experienced with the boilers and engines during the season, and between five and six weeks were lost during this time.

PACIFIC COAST SURVEY.

This party, under Lieut.-Commander P. C. Musgrave, R.N., with Messrs. O. R. Parker and L. R. Davies, as assistants, Captain Griffiths, sailing master, and Mr. A. Borrowman, first engineer, left Esquimalt on board the steamer *Lillooet* on the 13th April.

Owing to Lieut.-Commander Knight being still on service with the *Rainbow* and Mr. J. A. Turner with the forces in Europe, it was decided to lay up the schooner *Naden* at New Westminster.

The party first made a survey of Fisherman bay, at the north end of Vancouver island, and examined a reported danger said to lie 18 miles west of Triangle island, and another one about 9 miles southwest of the same spot, but no indication of any obstruction could be found.

In the early days of May a survey was made of a large portion of Millbank sound and a hunt was made for a shoal marked in that bay, but no sign of it could be found.

Later on a survey was made of "Blind Slue" and of the western portion of DeHorsey island, in the approach to Skeena river.

Between the 16th and 20th of May an officer of the Canadian Geodetic Survey joined the party and a cruise was made to Queen Charlotte islands with the intention of selecting a point for the main triangulation along that coast.

Between the 20th May and the 30th October the party was engaged in surveying various points around the Queen Charlotte islands and of the east side of Hecate strait. The east side of Queen Charlotte islands has now been surveyed for a distance of 10 miles offshore, between Rose spit and Cumshewa head. A small amount of sounding was done at the western end of Dixon entrance and in the approach to port Louis, whilst the coast line of the west side of Graham island has been extended from Frederick island to port Louis.

Considerable examination was done extending the survey of Skidegate inlet to the west end of East narrows, and in this connection the work of marking this channel by buoys and beacons, for the Department of Marine, was undertaken.

Some further surveying was done for a distance of 8 miles offshore, between Fan island and White rock, at the entrance to Browning passage.

To summarize, during the season, about 90 miles of coast line were surveyed, some 276 square miles were sounded and 930 linear miles of sounding were done from both the ship and boats. To convey some idea of the difficulties of surveying on this coast, I might mention that of the 168 working days, sixty were lost through bad weather, of which twenty-six were rain, but on the whole the season was rather better than 1914, because the party had eighty days of actual work as compared with only fifty in 1914.

ST. LAWRENCE RIVER SURVEY.

Mr. Charles Savary, being in charge of the survey work at the lower entrance to the St. Lawrence river, had for assistants, Messrs. E. Chysens, M. A. McKinnon, and C. Smith, with Capt. H. J. McGough as sailing master, and Mr. E. Belanger as chief engineer, on board the steamer *Cartier*.

The steamer was used in the winter of 1914-15 in the examination service at the entrance to the bay of Fundy and for this reason was not able to be outfitted and made available for work until the 23rd June when she left Quebec to survey between Matane and cape Chat, on the south shore, and pointe des Monts on the north shore. This work is just about completed, and a sheet embracing the above mentioned district will be handed to the King's Printer this spring.

During the season Mr. Savary and party traversed 90 miles of ocean line, sounding 1,000 miles from the ship's deck and 400 miles from the boats.

Returning in the autumn the steamer visited Chicoutimi to locate the buoys in the river there for placing on a new chart being compiled. The old surveys which had been used for this work were found to be quite inaccurate, and more work was therefore necessary. It is hoped that this chart will be forwarded to the King's Printer in the spring.

Mr. Savary reports that his staff and ship's officers have given him valuable assistance during the season. Mr. Smith enlisted for service overseas at the close of the season.

The steamer is laid up at Quebec, and only slight repairs to her engines will be required this winter.

LAKE ONTARIO SURVEY.

This survey, under Mr. G. A. Bachand, is composed of Messrs. J. W. Beauchemin, E. B. MacColl, and W. K. Willis as assistant surveyors; Captain McQuade, sailing master, and John Nisbet, chief engineer. The party fitted out the steamer *Bayfield* at the lighthouse depot, Prescott, Ont., and left there on the 26th April last. The season between this date and the 20th September was taken up in completing the survey of the west end of lake Ontario, Hamilton bay, Port Dalhousie, Port Credit, Oakville, and Bronte harbours; this completes the survey of the lake, and charts of these harbours as well as the coast will be placed in the hands of the King's Printer this spring.

On the 21st September the party left for Kingston and started a survey of that harbour and approach, working from Snake island to Cataraqui bridge and between Bell point on Wolfe island to point Pleasant on the west. This work will be completed this spring.

During the season, in addition to the triangulation necessary for the work, there were 90 miles of traversing done, 460 miles of sounding from boats and 280 miles from the deck of the ship.

The party returned to Prescott on the 30th October, and the ship laid up at the Dominion lighthouse depot for the winter.

LAKE SUPERIOR SURVEY.

This work is in charge of Mr. H. D. Parizeau, who has for assistants, Messrs. H. H. Lawson, F. R. Mortimer and H. L. Leadman, but the former joined the overseas forces last winter and was therefore not available for work during the season. The party uses the steamer *La Canadienne,* with Captain Playter as sailing master, and Mr. N. C. Munro as chief engineer.

After some slight work surveying and locating changes and improvements in Owen Sound harbour the party left the latter place on the 28th April and reached Byng inlet the following morning. Work was resumed there on the plan of Byng inlet, which was started in the autumn of 1914, and was completed on the 5th June, and a chart has been prepared, which is now with the King's Printer for publication.

Leaving Byng inlet the party proceeded to Little Current to inspect the positions of the buoys in that channel that they might be in accordance with the new charts recently issued.

On the trip between Little Current and Sault Ste. Marie opportunity was taken to examine some suspicious soundings in False Detour channel and off the south shore of Drummond island. In one case it was found necessary to remove a shoal printed on the chart and in another case to register a shoal that had been uncharted.

With the assistance of the steamer's crew a new automatic gauge was installed at Michipicoten harbour, in accordance with the desire of the International Commission and its order relating to the control of the levels of lake Superior.

Regular surveying work was resumed on the 15th of June at ship sounding offshore between Oiseaux bay and Copper island. The survey of the north shore of lake Superior is now completed from Pigeon bay as far east as Otter head, except for the large Nipigon and Black bays. There remains only one shoreline between Otter head and cape Gargantua and around Michipicoten and Caribou islands.

When autumn weather set in, about the middle of September, it was deemed advisable to move the steamer *La Canadienne* to quieter waters, and a triangulation of Nipigon bay was undertaken and completed.

During the season, Mr. Pariseau and party traversed 43 miles of coast line, sounded 624 miles from boats and 535 miles from the deck of the ship. The party reached Owen Sound on the 30th October, and laid up the steamer there, the officers returning to Ottawa.

After laying up the steamer, Mr. Parizeau visited Key harbour and searched for a new danger reported there, on which a vessel had struck, but ascertained that the accident was due to a misplaced buoy. He also visited Penetanguishene harbour and made a survey of changes that have taken place there since the last issue of the chart.

JAMES BAY.

Mr. Paul Jobin was again placed in charge of the work in James bay, with Mr. R. T. Bowes, assistant.

The party, consisting of the surveyors and five men, left Cochrane on the 6th of May, proceeded down the Moose river and arrived at Moose Factory on the 12th. The launch which had been left there was first overhauled and a small schooner hired from Revillon Frères to be used for a houseboat for the party.

A survey was made of the mouth of Moose river, and a plan of this has been prepared. Upon the completion of this work the party moved to Strutton and Charlton islands to do some sounding in Charlton sound, which was completed on the 21st September. The party then returned to Ottawa via Moose Factory and Cochrane, arriving here on the 15th of October.

An automatic gauge was erected at the mouth of Moose river, and two months' record of the tides obtained; this has been handed over to the Superintendent of the

Tidal Survey. Conditions for navigation were generally good this year; the ss. *Bonaventure* arrived at Strutton island on the 3rd August, having seen only a small quantity of ice in Hudson strait.

AUTOMATIC GAUGES.

The following eleven gauges were operated on the Great Lakes during the year 1915:

Port Arthur	Lake Superior	Jan.	1	to Dec.	31.
Michipicoten Harbour	"	June	15	to Dec.	31 (new).
Sault Ste. Marie	Above Locks	Jan.	1	"	31.
Sault Ste. Marie	Below Locks	Jan.	1	"	31.
Collingwood	Georgian Bay	May	22	to July	27.
		Nov.	22	to Dec.	31.
Goderich	Lake Huron	May	21	"	15.
Isle Aux Peches	Detroit River	Jan.	1	"	31.
Fighting Island	"	Jan.	1	"	31.
Port Colborne	Lake Erie	Jan.	1	"	31.
Port Dalhousie	Lake Ontario	May	20	"	15.
Kingston	"	Jan.	1	"	31.

During November, 1915, the Collingwood gauge was installed in such a way as to secure complete yearly records. The only gauges on the Great Lakes not now obtaining yearly records are Goderich and Port Dalhousie, but arrangements have been made for such an installation of the Port Dalhousie gauge at Port Weller, when the approaches to the New Welland canal are completed. Records of the Michipicoten harbour gauge cannot be reduced to mean sea-level until such time as an elevation for our bench-mark is obtained from the Geodetic Survey.

On the St. Lawrence river the following sixteen gauges were operated for the Montreal-Quebec Ship Channel Commission and the Montreal Water Level Commission:—

Pointe Claire	Lake St. Louis	May	24	to Dec.	31.
Verdun	St. Lawrence River	Aug.	20	"	31 (new).
Montreal Harbour	" "	April	20	"	31.
Longue Pointe	" "	"	21	"	31.
Varennes	" "	"	22	"	7.
Vercheres	" "	"	23	"	6.
Lanoraie	" "	"	17	"	6.
Sorel	" "	"	10	"	6.
Lake St. Peter	" "	"	17	"	2.
Three Rivers	" "	"	14	"	2.
Batiscan	" "	"	21	"	3.
Cap a la Roche	" "	May	10	"	3 (new).
Richelieu Rapids	" "	"	12	"	3
Pointe Platon	" "	April	21	to Nov.	30.
Neuville	" "	"	22	to Dec.	2.
St. Nicholas	" "	"	23	"	4.

The above gauges were operated in a more satisfactory manner than in previous years, and in very few cases were there any breaks to cause incomplete records. The Pointe Claire and Verdun gauges are still operating to obtain winter records. The Montreal and Longue Pointe gauges were operated till January 10, 1916, when high water made it necessary to remove them before flooding.

All gauges on the St. Lawrence river are now connected with authentic Canadian bench-marks with elevations by latest adjusted level line.

During 1915 there was an addition of five new gauges, making twenty-seven during the summer months and eleven during the whole year.

The automatic water gauge work is conducted by Mr. C. A. Price, assisted by Messrs. A. R. Lee, Wm. J. Miller (on active service), C. G. Smith (until June 11, 1915), and C. F. Hannington (from July 12, 1915).

Attached are the following appendices, giving records obtained from the gauges:—

I. Table showing corrected elevations of Bench Marks and corrections to be applied to Water Surface Elevations of Lower St. Lawrence, as given in reports of 1913 and 1914.

II. Monthly Mean Water Surface Elevations of the Great Lakes, for 1915, referred to United States datum or mean sea level.

III. Daily mean elevation of Lake St. Louis at Pointe Claire.

IV. Daily mean elevation of St. Lawrence river at Verdun.

V. Daily mean elevation of St. Lawrence river at Montreal.

VI. Daily mean elevation of St. Lawrence river at Longue Pointe.

VII. Daily mean elevation of St. Lawrence river at Varennes.

VIII. Daily mean elevation of St. Lawrence river at Verchères.

IX. Daily mean elevation of St. Lawrence river at Lanoraie.

X. Daily mean elevation of St. Lawrence river at Sorel.

XI. Daily mean elevation of Lake St. Peter at Range Light No. 2.

In closing this report I have to express my thanks to all the members of the staff for the valuable service they have rendered during the past year.

I have the honour to be, sir,
Your obedient servant,

WM. J. STEWART,
Hydrographer.

CORRECTED ELEVATIONS of Bench-marks, and changes to be applied to Water Surface Elevations, of Lower St. Lawrence river, given in the Reports of 1913 and 1914.

Location.	Old Elevation of Bench-mark used till Jan. 1, 1915.	New Elevation of Bench-mark used since Jan. 1, 1915.	Correction for Readings 1913 and 1914.
Montreal	36·46	36·46	.....
Longue Pointe	40·66	40·477	—·183
Varennes	32·451	31·97	—·481
Vercheres	30·844	30·78	—·064
Lanoraie	37·399	37·399	.....
Sorel	46·80	46·80	.....
Three Rivers	26·526	26·403	—·123
Batiscan	26·70	26·565	—·135
Pointe Platon	29·736	29·68	—·056
Neuville	56·381	56·481	+·10
St. Nicholas	16·101	16·19	+·089
St. Romuald	29·43	29·53	+·10

WATER SURFACE ELEVATIONS of "Great Lakes" for 1915, by Automatic Water Gauge, and Referred to Mean Sea-level.

	Location.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Lake Superior	Port Arthur	601·72	601·59	601·32	601·19	601·51	601·91	602·24	602·29	602·34	602·63	602·61	602·53	601·99
St. Mary's River	Above Locks	601·11	600·91	600·90	600·78	601·10	601·36	601·79	601·83	601·80	602·11	602·24	602·05	601·50
	Below Locks	581·61	581·66	581·36	580 75	580 77	581·01	581·22	581·34	581·35	581·39	581·32	581·03	581·23
Georgian Bay	Collingwood	.....	.....	.....	.....	579·59 from 22	579·69	579·84 till 28	gauge re	moved	.....	579·66 from 20	579·42	.....
Lake Huron	Goderich	.....	.....	.....	.....	579·63 from 21	579·76	579·91	580·03	579·98	579·86	579·67	579·61 till 14	579·81
Detroit River	Isle aux Peches	573·16	573·76	573·28	573·83	574·12	574·31	574·52	574·73	574·61	574·35	573·91	573·88	574·04
	Fighting Island	572·67	573·27	572·84	573·28	573·56	573·76	573·97	574·19	574·09	573·80	573·30	573·26	573·50
Lake Erie	Port Colborne	571·02	571·11	571·26	571·24	571·36	571·58	571·80	572·08	571·95	571·84	571·72	571·40	571·53
Lake Ontario	Port Dalhousie	.....	.....	.....	.....	245·13 from 20	245·07	245·07	245·44	245·38	245·18	244·84	244·73 till 14	245·11
	Kingston	244·59	244·76	245·07	245·00	245·01	244·99	245·02	245·33	245·35	245·20	244·89	244·68	244·99

DAILY MEAN Water Surface Elevations of Lake St. Louis, at Pointe Claire, Que. Elevations are above Mean Sea-level and are referred to Bench-mark CCCCIII on Southeast corner of Roman Catholic church. Elevation, 83·95.

Days.	1915.							
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	68·37	67·98	67·31	67·82	67·42	67·44	67·38
2	.....	68·30	67·92	67·29	67·80	67·35	67·47	67·30
3	.....	68·28	67·92	67·23	67·77	67·37	67·43	67·26
4	.....	68·24	67·93	67·10	67·73	67·50	67·39	67·21
5	.....	68·21	67·98	67·13	67·69	67·63	67·23	67·10
6	.....	68·17	67·94	67·24	67·70	67·73	67·17	67·07
7	.....	68·16	67·95	67·35	67·70	67·75	67·12	.....
8	.....	68·12	67·88	67·43	67·71	67·72	67·13	.....
9	.....	68,09	67·77	67·58	67·74	67·71	67·15	.....
10	.....	68·08	67·73	67·68	67·71	67·67	67·24	.....
11	.....	68·00	67·75	67·73	67·67	67·68	67·20	.....
12	.....	67·98	67·80	67·76	67·60	67·72	67·11	.....
13	.....	67·97	67·80	67·74	67·50	67·74	67·16	66·95*
14	.....	68·07	67·78	67·74	67·50	67·72	67·26	67·02
15	.....	68·16	67·77	67·75	67·56	67·67	67·33	67·13
16	.....	68·23	67·72	67·78	67·62	67·55	67·31	67·45
17	.....	68·22	67·67	67·76	67·65	67·47	67·29	67·69
18	.....	68·16	67·66	67·71	67·61	67·52	67·24	67·58
19	.....	68·12	67·68	67·70	67·53	67·56	67·04	67·34
20	.....	68·11	67·74	67·72	67·55	67·56	67·10	67·31
21	.....	68·08	67·70	67·75	67·54	67·54	67·41	67·32
22	.....	67·99	67·67	67·77	67·53	67·51	67·55	67·24
23	68·74*	67·92*	67·63	67·91	67·53	67·47	67·56	67·16
24	68·75	67·99	67·58	68·06	67·51	67·39	67·48	67·21
25	68·75	68·04	67·51	68·14	67·46	67·44	67·31	67·25
26	68·68	68·04	67·47	68·10	67·38	67·47	67·18	67·25
27	68·59	68·07	67·45	68·04	67·47	67·51	67·12	67·26
28	68·51	68·11	67·42	67·90	67·47	67·52	67·16	67·33
29	68·49	68·11	67·42	67·80	67·41	67·49	67·21	67·30
30	68·41	68·06	67·42	67·82	67·43	67·43	67·33	67·59
31	68·37	.....	67·39	67·87	.....	67·41	.....	67·88
Mean	68·59	68·12	67·66	67·67	67·60	67·56	67·27	67·30

* Denotes Mean of less than 24 hourly readings.

DAILY MEAN Water Surface Elevations of St. Lawrence River taken at Verdun, Que. Elevations are above Mean Sea-level and are referred to Bench-mark "V4" on R. Bennett's house opposite wharf. Elevation, 58·07.

Days.	1915.							
	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	.....	34·25*	34·04	34·05	33·98
2	.....	.....	.....	.....	34·24*	34·04	34·07	33·98
3	.....	.....	.....	.....	34·23	34·02	34·06	33·99
4	.....	.....	.....	.....	34·22	34·07	34·05	33·98
5	.....	.....	.....	.....	34·20	34·11	34·03	33·96
6	.....	.....	.....	.....	34·16	34·12	34·04	33·95
7	.....	.....	.....	.....	34·17	34·14	34·01	33·95
8	.....	.....	.....	.....	34·17	34·16	33·99	33·95
9	.....	.....	.....	.....	34·17	34·16	34·00	33·95
10	.....	.....	.....	.....	34·18	34·14	34·00	33·95
11	.....	.....	.....	.....	34·17	34·14	34·00	33·94
12	.....	.....	.....	.....	34·14	34·15	33·99	33·92
13	.....	.....	.....	.....	34·12	34·16	33·99	33·91
14	.....	.....	.....	.....	34·11	34·16	33·99	33·94
15	.....	.....	.....	.....	34·12	34·15	33·99	34·03
16	.....	.....	.....	.....	34·13	34·13	34·00	34·20
17	.....	.....	.....	.....	34·13	34·09	33·99	34·39*
18	.....	.....	.....	.....	34·13	34·09	33·98	34·27
19	.....	.....	.....	.....	34·13	34·09	33·94	34·13
20	.....	.....	.....	.....	34·10	34·09	33·93	34·05
21	.....	.....	.....	.....	34·10	34·09	33·96	34·08
22	.....	.....	.....	.....	34·11	34·09	34·03	34·05
23	.....	.....	.....	.....	34·10	34·08	34·05	33·99
24	.....	.....	.....	.....	34·10	34·06	34·03	33·97
25	.....	.....	.....	.....	34·10	34·06	34·02	33·96
26	.....	.....	.....	.....	34·04	34·07	34·00	33·96
27	.....	.....	.....	34·36*	34·01	34·07	33·98	34·01
28	.....	.....	.....	34·32	34·03	34·07	33·98	33·99
29	.....	.....	.....	34·27	34·03	34·07	33·97	34·06
30	.....	.....	.....	34·25	34·03	34·06	33·97	34·74
31	.....	.....	.....	34·26	.....	34·05	.....	34·76
Mean	.....	.....	.....	.....	34·13	34·09	34·00	34·06

* Denotes Mean of less than 24 hourly readings.

DAILY MEAN Water Surface Elevations of St. Lawrence River taken at Montreal, Que., (Foot of Lachine Canal). Elevations are above Mean Sea-level and are referred to Bench-mark No. 637. Elevation, 36·46.

Days.	1915.								
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	23·25	21·06	20·45	19·31	19·87	19·33	18·86	18·85
2	.....	23·32	21·41	20·52	19·46	19·72	19·31	18·90	18·87
3	.....	23·38	21·01	20·37	19·31	19·70	19·15	19·04	18·81
4	.....	23·11	20·78	20·23	19·00	19·62	19·12	19·00	18·78
5	.....	22,85	20·59	19·99	18·89	19·50	19·18	19·14	18·75
6	.....	22·56	20·41	19·90	18·93	19·44	19·55	19·01	18·89
7	.....	22·33	20·28	19·90	19·00	19·48	19·67	18·87	18·87
8	.....	22·16	20·10	19·94	19·10	19·58	19·68	18·94	18·83
9	.....	22·06	20·23	19·91	19·38	19·63	19·76	18·97	19·03
10	.....	22·11	20·20	19·74	19·63	19·66	19·78	19·08	19·04
11	.....	22·18	20·08	19·65	19·66	19·67	19·69	19·06	18·83
12	.....	22·05	20·04	19·71	19·72	19·65	19·70	18·91	18·58
13	.....	22·34	19·99	19·87	19·75	19·68	19·76	18·78	18·63
14	.....	22·19	20·16	19·88	19·73	19·58	19·69	18·73	18·97
15	.....	22·09	20·27	19·90	19·76	19·59	19·75	18·79	18·80
16	.....	21·93	20·37	19·86	19·80	19·61	19·45	18·93	18·85
17	.....	21·80	20·45	19·84	19·99	19·57	19·13	18·80	19·07
18	.....	21·70	20·49	19·73	19·84	19·48	19·18	18·65	19·55
19	.....	21·78	20·14	19·68	19·71	19·30	19·17	18·87	19·25
20	21·35*	21·68	20·21	19·71	19·65	19·36	19·27	18·71	19·16
21	21·29	21·47	20·30	19·72	19·63	19·29	19·29	18·86	19·18
22	21·09	21·17	20·27	19·61	19·67	19·48	19·31	19·13	19·16
23	20·97	21·21	20·42	19·53	19·76	19·41	19·31	19·22	19·23
24	21·04	21·24	20·37	19·40	20·04	19·39	19·18	19·22	19·26
25	21·12	21·29	20·44	19·43	20·22	19·36	19·16	19·07	19·25
26	21·19	21·46	20·40	19·41	20·33	19·17	19·10	19·01	19·33
27	21·49	21·31	20·39	19·35	20·28	19·57	19·15	18·94	19·11
28	21·82	21·23	20·46	19·31	20·14	19·53	19·18	18·76	19·16
29	21·91	21·35	20·51	19·35	20·02	19·42	19·14	18·81	19·25
30	22·73	21·12	20·46	19·32	19·95	19·33	19·13	18·74	19·44
31	.....	21·11	.....	19·28	20·03	.....	19·01	.....	19·81
Mean	21·45	21·96	20·41	19·76	19·67	19·52	19·36	18·93	19·05

* Denotes Mean of less than 21 hourly readings.

DAILY MEAN Water Surface Elevations of St. Lawrence River at Longue Pointe, Que. Elevations are above Mean Sea-level and are referred to Copper Plug Bench-mark in southeast corner of Longue Pointe Asylum pump-house. Elevation, 40·477.

Days.	1915.								
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	22·28	19·84	19·23	18·10	18·57	18·09	17·59	17·60
2	.....	22·33	20·22	19·21	18·22	18·41	18·10	17·56	17·62
3	.....	22·39	19·80	19·15	18·09	18·39	17·94	17·71	17·59
4	.....	22·09	19·55	19·02	17·76	18·30	17·89	17·70	17·57
5	.....	21·79	19·36	18·75	17·64	18·19	17·91	17·87	17·57
6	.....	21·47	19·19	18·58	17·66	18·12	18·27	17·80	17·71
7	.....	21·21	19·04	18·59	17·73	18·14	18·40	17·70	17·71
8	.....	21·00	18·82	18·63	17·84	18·24	18·43	17·77	17·66
9	.....	20·89	18·94	18·61	18·09	18·31	18·52	17·79	17·86
10	.....	20·89	18·93	18·49	18·33	18·37	18·56	17·88	17·87
11	.....	20·96	18·82	18·43	18·34	18·38	18·47	17·88	17·67
12	.....	20·84	18·81	18·46	18·38	18·38	18·44	17·75	17·43
13	.....	21·08	18·78	18·62	18·44	18·43	18·49	17·57	17·44
14	.....	21·02	18·88	18·63	18·46	18·35	18·42	17·52	17·79
15	.....	20·92	18·98	18·64	18·49	18·35	18·49	17·57	17·60
16	.....	20·76	19·06	18·62	18·50	18·31	18·22	17·68	17·68
17	.....	20·62	19·15	18·63	18·68	18·25	17·91	17·58	17·92
18	.....	20·48	19·21	18·52	18·55	18·18	17·92	17·41	18·38
19	.....	20·54	18·90	18·43	18·43	18·03	17·89	17·70	18·12
20	.....	20·46	18·95	18·43	18·35	18·05	17·97	17·57	17·99
21	20·02*	20·23	19·01	18·46	18·34	17·97	18·00	17·65	18·02
22	19·90	19·92	18·98	18·36	18·39	18·17	18·03	17·86	18·01
23	19·74	19·95	19·19	18·28	18·46	18·11	18·04	17·95	18·12
24	19·80	19·97	19·15	18·17	18·69	18·06	17·94	18·00	18·17
25	19·89	20·00	19·21	18·19	18·85	18·11	17·91	17·86	18·15
26	19·96	20·18	19·18	18·17	19·00	17·94	17·84	17·80	18·24
27	20·28	20·07	19·15	18·13	18·98	18·33	17·87	17·74	18·00
28	20·68	20·00	19·21	18·08	18·86	18·30	17·91	17·58	18·00
29	20·80	20·14	19·25	18·12	18·77	18·20	17·86	17·62	18·11
30	21·66	19·94	19·22	18·10	18·68	18·11	17·84	17·49	18·38
31	.....	19·92	.....	18·08	18·74	.....	17·74	.....	18·86
Mean	20·27	20·79	19·16	18·51	18·38	18·24	18·11	17·71	17·90

* Denotes Mean of less than 24 hourly readings.

DAILY MEAN Water Surface Elevations of St. Lawrence River taken at Varennes, Que. Elevations are above Mean Sea-level and are referred to Crow's foot Bench-mark on stone wall in rear of wharf. Elevation, 31·97.

Days.	1915.								
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		21·21	18·42	17·84	16·56	17·00	16·50	15·94	15·97
2		21·24	18·91	17·95	16·66	16·81	16·54	15·84	16·04
3		21·28	18·46	17·76	16·56	16·78	16·36	16·01	16·02
4		20·95	18·13	17·58	16·22	16·68	16·28	16·03	16·01
5		20·61	17·91	17·25		16·58	16·27	16·26	16·04
6		20·23	17·71	16·99		16·51	16·63	16·23	16·21
7		19·91	17·52	16·99		16·52	16·81	16·15	
8		19·69	17·25	17·06	16·20	16·60	16·87	16·25	
9		19·55	17·37	17·06	16·43	16·71	16·98	16·25	
10		19·51	17·35	16·96	16·71	16·79	17·05	16·29	
11		19·54	17·27	16·90	16·76	16·81	16·97	16·30	
12		19·42	17·26	16·91	16·81	16·83	16·90	16·18	
13		19·71	17·30	17·08	16·88	16·91	16·94	15·94	
14		19·64	17·32	17·12	16·91	16·82	16·87	15·86	
15		19·52	17·48	17·13	16·96	16·80	16·92	15·79	
16		19·37	17·59	17·12	16·95	16·75	16·64	15·99	
17		19·24	17·70	17·11	17·12	16·66	16·29	15·91	
18		19·06	17·75	17·00	16·99	16·59	16·30	15·74	
19		19·07	17·40	16·88	16·86	16·44	16·27	16·15	
20		18·98	17·47	16·86	16·76	16·43	16·35	16·06	
21	18·56*	18·76	17·53	16·89	16·75	16·34	16·40	16·05	
22	18·47	18·41	17·53	16·80	16·83	16·54	16·43	16·21	
23	18·29	18·42	17·79	16·71	16·85	16·51	16·44	16·32	
24	18·38*	18·41	17·76	16·62	17·10	16·45	16·39	16·41	
25	18·54*	18·45	17·81	16·64	17·27	16·52	16·35	16·30	
26	18·59	18·63	17·76	16·64	17·43	16·37	16·31	16·27	
27	18·99*	18·54	17·74	16·59	17·43	16·75	16·29	16·24	
28	19·43	18·48	17·79	16·54	17·35	16·73	16·30	16·04	
29	19·60	18·68	17·81	16·57	17·27	16·63	16·26	16·09	
30	20·50	18·49	17·80	16·56	17·17	16·54	16·20	15·87	
31		18·46		16·53	17·20		16·10		
Mean		19·40	17·70	16·99	16·89	16·65	16·52	16·10	

* Denotes Mean of less than 24 hourly readings.

DAILY MEAN Water Surface Elevations of St. Lawrence River taken at Verchères, Que. Elevations are above Mean Sea-level and are referred to Crow's foot Bench-mark on North side of windmill near wharf. Elevation, 30.78.

Days.	1915.								
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	20·38	17·34	16·67	15·46	15·78	15·30	14·69	14·70
2	.....	20·41*	17·78	16·80	15·54	15·57	15·35	14·57	14·74
3	.....	.....	17·34	16·59	15·45	15·52	15·14	14·74	14·75
4	.....	.....	16·98	16·39	15·10	15·40	15·06	14·78	14·76
5	.....	19·61*	16·74	16·06	14·91	15·30	15·05	15·07	14·83
6	.....	19·31	16·52	15·74	14·86	15·25	15·36	15·07	.....
7	.....	18·97	16·32	15·70	14·90	15·28	15·58	15·02	.....
8	.....	18·71	16·07	15·75	15·00	15·37	15·67	15·14	.....
9	.....	18·55	16·15	15·77	15·25	15·49	15·80	15·15	.....
10	.....	18·49	16·15	15·71	15·52	15·59	15·88	15·15	.....
11	.....	18·51	16·09	15·67	15·56	15·62	15·81	15·17	.....
12	.....	18·40	16·09	15·69	15·60	15·65	15·74	15·06	.....
13	.....	18·69	16·15	15·87	15·67	15·74	15·76	14·79	.....
14	.....	18·63	16·17	15·93	15·71	15·66	15·67	14·66	.....
15	.....	18·52*	16·30	15·94	15·77	15·63	15·69	14·69	.....
16	.....	18·36	16·31	15·96	15·76	15·55	15·41	14·78	.....
17	.....	18·21	16·41	15·96	15·89	15·44	15·05	14·68	.....
18	.....	17·99	16·47	15·86	15·78	15·35	15·04	14·52	.....
19	.....	17·98	16·25	15·72	15·64	15·21	15·02	14·99	.....
20	.....	17·88	16·20	15·68	15·54	15·21	15·09	14·97	.....
21	.....	17·67	16·25	15·70	15·53	15·16	15·15	14·91	.....
22	.....	17·34	16·27	15·62	15·60	15·35	15·19	14·99	.....
23	17·17*	17·30	16·56	15·53	15·63	15·33	15·19	15·11	.....
24	17·27	17·26	16·55	15·44	15·85	15·25	15·18	15·23	.....
25	17·40	17·32	16·61	15·46	16·03	15·34	15·15	15·14	.....
26	17·51	17·49	16·53	15·46	16·18	15·21	15·13	15·12	.....
27	17·91	17·42	16·51	15·43	16·22	15·57	15·07	15·07	.....
28	18·43	17·40	16·55	15·42	16·14	15·55	15·06	14·86	.....
29	18·69	17·62	16·58	15·46	16·08	15·44	15·02	14·91	.....
30	19·65	17·46	16·58	15·46	15·99	15·36	14·93	14·65	.....
31	.....	17·44	.....	15·44	15·99	.....	14·83	.....	.....
Mean	.....	18·25	16·49	15·00	15·62	15·44	15·30	14·92	.....

Denotes Mean of less than 24 hourly readings.

DAILY MEAN Water Surface Elevations of St. Lawrence River taken at Lanoraie, Que., Elevations are above Mean Sea-level and are referred to Bench-mark top of iron pin in Hydrographic Station west of approach to Lanoraie wharf. Elevation, 37.399.

Days.	1915								
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		19·24	15·86	15·18	13·89	14·05	13·63	12·92	12·92
2		19·30	16·32	15·30	13·92	13·81	13·68	12·77	12·96
3		19·23	15·87	15·07	13·82	13·71	13·45	12·92	13·00
4		18·83	15·44	14·83	13·47	13·59	13·35	13·01	13·04
5		18·47	15·15	14·46	13·23	13·48	13·35	13·36	13·20
6		18·02	14·89	14·00	13·16	13·45	13·59	13·46	
7		17·60	14·68	13·94	13·18	13·51	13·85	13·48	
8		17·41	14·44	14·00	13·29	13·63	14·02	13·62	
9		17·15	14·47	14·04	13·57	13·81	14·18	13·64	
10		17·04	14·51	14·03	13·84	13·95	14·28	13·60	
11		16·99	14·48	14·04	13·89	14·00	14·24	13·58	
12		16·92	14·52	14·09	13·95	14·03	14·14	13·47	
13		17·18	14·61	14·27	14·03	14·15	14·14	13·14	
14		17·15	14·61	14·34	14·10	14·08	14·03	12·95	
15		17·01	14·74	14·35	14·17	14·03	13·98	12·96	
16		16·88	14·72	14·40	14·13	13·92	13·69	13·10	
17	16·84*	16·75	14·79	14·42	14·18	13·76	13·31	12·95	
18	16·61	16·50	14·84	14·31	14·05	13·65	13·27	12·76	
19	16·38	16·41	14·72	14·11	13·93	13·53	13·30	13·37	
20	16·27	16·27	14·59	14·03	13·82	13·52	13·37	13·45	
21	16·16	16·06	14·61	14·05	13·81	13·53	13·45	13·30	
22	15·92	15·74	14·70	13·97	13·89	13·66	13·48	13·26	
23	15·71	15·64	15·03	13·89	13·95	13·68	13·46	13·40	
24	15·76	15·58	15·06	13·82	14·14	13·60	13·53	13·55	
25	15·92	15·63	15·09	13·84	14·35	13·70	13·52	13·50	
26	16·07	15·80	15·00	13·88	14·50	13·62	13·52	13·48	
27	16·55	15·75	14·96	13·87	14·54	13·98	13·42	13·43	
28	17·11	15·83	15·02	13·89	14·47	13·90	13·36	13·24	
29	17·46	16·09	15·05	13·94	14·43	13·80	13·29	13·25	
30	18·46	16·01	15·06	13·96	14·38	13·72	13·17	12·96	
31		15·98		13·93	14·29		13·09		
Mean	16·52	16·92	14·93	14·21	13·95	13·76	13·62	13·26	

* Denotes Mean of less than 24 hourly readings.

Daily Mean Water Surface Elevations of St. Lawrence River taken at Sorel, Que. Elevations are above Mean Sea-level and are referred to Canadian Bench-mark MCCCVII on northwest side of entrance to Sorel Post Office. Elevation, 46.80.

Days.	1915.								
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	18·83	15·39	14·73	13·50	13·65	13·22	12·51	12·52
2	.....	18·91	15·83	14·86	13·51	13·41	13·25	12·37	12·55
3	.....	18·83	15·39	14·62	13·42	13·29	13·02	12·51	12·60
4	.....	18·45	14·95	14·38	13·08	13·15	12·92	12·60	12·67
5	.....	18·04	14·65	14·02	12·83	13·05	12·93	12·97	12·83
6	.....	17·57	14·40	13·57	12·75	13·03	13·13	13·09	.....
7	.....	17·13	14·18	13·47	12·76	13·08	13·42	13·13	.....
8	.....	16·86	13·96	13·51	12·87	13·21	13·62	13·28	.....
9	.....	16·68	13·97	13·58	13·14	13·41	13·77	13·30	.....
10	16·81*	16·56	14·02	13·59	13·41	13·57	13·88	13·22	.....
11	17·09	16·50	14·00	13·61	13·47	13·62	13·85	13·21	.....
12	17·64	16·45	14·05	13·66	13·54	13·65	13·74	13·10	.....
13	17·65	16·67	14·15	13·83	13·62	13·78	13·75	12·78	.....
14	17·40	16·65	14·15	13·91	13·68	13·71	13·62	12·56	.....
15	17·05	16·52	14·27	13·92	13·76	13·66	13·53	12·56	.....
16	16·71	16·40	14·25	13·98	13·74	13·53	13·25	12·70	.....
17	16·44	16·27	14·31	13·98	13·77	13·36	12·87	12·54	.....
18	16·16	16·02	14·35	13·88	13·65	13·24	12·83	12·38	.....
19	15·92	15·91	14·27	13·70	13·52	13·12	12·88	12·99	.....
20	15·79	15·76	14·13	13·61	13·41	13·12	12·95	13·12	.....
21	15·68	15·53	14·13	13·63	13·39	13·16	13·03	12·96	.....
22	15·43	15·23	14·23	13·55	13·47	13·29	13·06	12·88	.....
23	15·20	15·11	14·55	13·48	13·55	13·31	13·04	13·01	.....
24	15·25	15·04	14·62	13·42	13·72	13·21	13·13	13·15	.....
25	15·43	15·10	14·62	13·43	13·93	13·32	13·11	13·11	.....
26	15·60	15·27	14·53	13·47	14·08	13·25	13·11	13·11	.....
27	16·06	15·27	14·50	13·48	14·12	13·60	13·01	13·05	.....
28	16·66	15·36	14·56	13·52	14·06	13·51	12·93	12·86	.....
29	17·04	15·60	14·59	13·55	14·02	13·40	12·85	12·86	.....
30	18·03	15·55	14·61	13·58	13·96	13·32	12·74	12·58	.....
31	.....	15·51	.....	13·55	13·75	.....	12·65	.....	.....
Mean	16·43	16·44	14·45	13·78	13·53	13·37	13·20	12·88	.....

* Denotes Mean of less than 24 hourly readings.

DAILY MEAN Water Surface Elevations of Lake St. Peter taken at Range Light No. 2. Elevations are above Mean Sea-level and are referred to Bench-mark, a brass plug in north side of concrete pier. Elevation, 18.603.

Days	1915								
	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1..		17·84	14·51	13·75	12·26	12·24	11·83	11·31	11·41
2..		18·15	14·74	13·84	12·17	11·90	11·81	11·24	
3..		18·06	14·46	13·62	12·04	11·69	11·61	11·32	
4..		17·73	14·00	13·35	11·70	11·52	11·48	11·46	
5..		17·31	13·65	12·99	11·39	11·42	11·52	11·76	
6..		16·81	13·37	12·45	11·25	11·45	11·74	12·06	
7..		16·31	13·12	12·26	11·29	11·53	12·07	12·20	
8..		16·09	12·97	12·27	11·41	11·72	12·42	12·32	
9..		15·92	12·87	12·37	11·74	12·03	12·60	12·42	
10..		15·77	12·93	12·45	12·05	12·25	12·72	12·28	
11..		15·66	12·95	12·46	12·14	12·33	12·74	12·23	
12..		15·64	13·05	12·52	12·23	12·35	12·63	12·12	
13..		15·73	13·15	12·68	12·31	12·40	12·63	11·83	
14..		15·78	13·15	12·76	12·39	12·41	12·48	11·50	
15..		15·66	13·26	12·78	12·48	12·37	12·27	11·43	
16..		15·53	13·25	12·84	12·45	12·17	12·02	11·73	
17..		15·39	13·27	12·85	12·40	11·95	11·59	11·47	
18..	15·27*	15·16	13·27	12·75	12·28	11·77	11·52	11·26	
19..	15·08	14·98	13·27	12·51	12·14	11·68	11·67	11·57	
20..	14·91	14·80	13·08	12·39	11·98	11·68	11·75	12·25	
21..	14·77	14·57	13·02	12·36	11·93	11·82	11·90	12·14	
22..	14·52	14·32	13·14	12·29	12·04	11·95	11·96	11·88	
23..	14·28	14·13	13·47	12·22	12·20	11·98	11·89	11·98	
24..	14·26	14·02	13·66	12·18	12·36	11·84	12·05	12·07	
25..	14·47	14·09	13·63	12·16	12·63	11·98	12·05	12·09	
26..	14·73	14·18	13·53	12·24	12·79	11·97	12·04	12·07	
27..	15·23	14·29	13·52	12·28	12·84	12·35	11·97	12·03	
28..	15·82	14·40	13·57	12·35	12·75	12·18	11·81	11·85	
29..	16·28	14·63	13·60	12·39	12·72	12·06	11·70	11·76	
30..	17·06	14·69	13·64	12·42	12·69	11·97	11·61	11·64	
31..		14·64		12·35	12·52		11·49		
Mean..	15·13	15·56	13·44	12·62	12·18	11·97	11·99	11·84	

* Denotes Mean of less than 24 hourly readings.

CANADIAN ARCTIC EXPEDITION.

The Canadian Arctic Expedition, under the leadership of Mr. Vilhjalmur Stefansson, was fitted out in the summer of 1913. The expedition was divided into two divisions. The northern division sailed in C.G.S. *Karluk* from Victoria on the 20th July. The vessel became icebound and the party were unable to reach Banks island, where they were to have wintered.

Near Thetis island Mr. Stefansson, with D. Jenness, B. M. McConnell, and Geo. H. Wilkins, undertook a hunting trip to the mainland. During a gale which followed, the vessel was carried away and they were obliged to join the southern division wintering at Collinson point. The vessel was carried about in the ice for three months, until January, 1914, when it was crushed and sunk. In endeavouring to reach land eight members of the shipwrecked party were lost. The remaining members succeeded in reaching Wrangel island, whence, with three exceptions, they were rescued and landed at Victoria.

Upon the arrival of Stefansson at Collinson point he immediately began preparations for a trip, on foot, over the ice of Beaufort sea. Although the fate of the *Karluk* was not known to the party at Collinson point, Mr. Stefansson realized that the men in that ship, owing to ice conditions, could not be counted upon to carry out the work of the northern division. As the work of this division was to consist of the exploration of Beaufort sea to the west of Banks island and Prince Patrick island, over areas hitherto unexplored, Mr. Stefansson undertook the trip on foot, across the ice, to carry out this work.

For the purpose of utilizing the supplies therein, and to assist him during the summer of 1914, he purchased the auxiliary schooner *North Star*.

Before setting out, Mr. Stefansson gave instructions to have a ship (preferably the *North Star*) sent north to Banks island during the summer of 1914 in the event of his not returning to camp. The length of his trip over the ice was to depend entirely upon ice conditions and the possibility of establishing himself at a more northerly base.

The ice party, composed of Vilhjalmur Stefansson, Ole Andreasen, Storker Storkerson, accompanied by a supporting party, left Martin point on the 22nd March, 1914. After leaving the land-fast ice, the party experienced great difficulty from the drift of the flow which had been set in motion by a gale a few days previously. The drift, southeast, following the trend of the shore, was so fast that only two miles northing a day was averaged during the first two weeks. Mild weather added further to the difficulties of travelling. The party were further delayed by an accident to Captain Beneard, which necessitated his return to shore.

On the 7th April the party reached N. Lat. 70° 20′ 04″, W. Long. 140° 50′ 30″. From this point the supporting party returned to shore, leaving the ice party to pursue their trip to the north. On the 9th April the party were obliged to pass through fields of loose ice in some instances ferrying themselves across open spaces on single cakes not more than 50 feet square and two feet thick. During the night of the 9th April a terrific gale set in which caused the ice to raft considerably.

Cold weather set in after this storm and the travelling over the ice became comparatively good. Up to the 27th April, clear, calm weather prevailed. The thermometer varied from ten to twenty degrees below zero. The distance travelled ranged from fifteen to twenty-five miles a day. Thus far their direction had been due north approximately along the 140th meridian.

On the 27th April they arrived at N. Lat. 72° 58′ 28″, W. Long. 140° 47′ 30″. Owing to the advanced season and the scarcity of food animals on the floe it became necessary for them to make for land. They shaped a great circle course for cape Alfred, Banks island. During the first few days, owing to the character of the ice,

they made more northing than a great circle course requires. On the 4th May they were in N. Lat. 73° 49′ 11″, W. Long. 133° 09′, and on the 13th May they crossed the 74th parallel at the 130th meridian.

After the 5th May, open leads were numerous. The party were from this date on half rations, although the dogs were given full food allowance to prevent them from weakening. On the 15th May a seal was shot, and thereafter an abundance of food was obtained. On the way to land forty seals and eight bears were shot.

On the 24th May the party were stopped by a lead which was too wide to cross. They were then in N. Lat. 74° 05′ 34″, W. Long. 128° 01′ 45″, or about forty-five miles from the Gore islands near cape Alfred, Banks island. They were not able to cross the lead until the 5th June, when they had drifted over 40 miles west and a little south. Throughout the month of May young ice in the leads retarded progress as the raft was difficult to handle. During June the leads did not freeze over, and they were negotiated without difficulty.

Land was sighted on the 22nd June. The southerly drift encountered had carried the party south of cape Alfred. They landed at Norway island on the north coast of Banks island on the 25th June, ninety-six days after leaving Martin point.

In succeeding to reach Banks island by a trip on foot across Beaufort sea, Mr. Stefansson and his party made it possible to carry out the work as originally planned. The party carried only two weeks' provisions with them on leaving Martin point. They were, however, able to live ninety-six days and remained in good health. Mr. Stefansson thus demonstrated, during this trip, his theory that a white man can live on the resources of the northern lands and ice fields.

On this journey a portion of Beaufort sea hitherto unexplored was covered. The continental shelf extends off the Alaskan coast for a distance of 50 miles, after which the descent is very steep. Outside the continental shelf soundings taken with 1,386 meters of sounding wire gave "no bottom" until about 50 miles off the west coast of Banks island. The bottom off this coast descends gradually and in terraces.

Throughout the whole area over which the party travelled careful observations of current action were taken.

On the journey across Beaufort sea no islands were sighted. This fact, together with the results of soundings taken would indicate that no land exists for a considerable distance on either side of the area covered between Martin point and Banks island.

The summer of 1914 was spent examining the shores of Banks island in that vicinity. It was ascertained that its west coast abounds in harbours which afford excellent protection to ships. Near Norway island, what is shown on Admiralty charts as a point of land extending from the mainland was found, upon investigation, to be an island. It was named Beneard island. An investigation of Wilkins river, which empties east of Beneard island, was made. This river is the largest in northern Banks island.

Archaeological investigations carried on brought negative results; it was ascertained from the remains of old camps and other signs that no Eskimos have resided permanently in northern Banks island for at least one hundred years.

The survey work of the party during the summer of 1914 was confined to making maps of Norway and Beneard islands and Wilkins river.

The party journeyed south to Kellett, arriving on the 11th September, where they met Geo. H. Wilkins and party sent north in the *Mary Sachs* with supplies. Owing to damages sustained in the journey to Kellett, the vessel had been beached. Mr. Stefansson prepared winter quarters at Kellett and stored sufficient food supplies to maintain them during the coming winter. The party were occupied at this work until the 26th November.

On the 22nd December Mr. Stefansson, with the Eskimo Natkusiak set out on a sledge trip to De Salis bay on the southeast coast of Banks island to locate any Eskimos

wintering there. Considerable difficulty was experienced on the journey over land owing to the uneven nature of southern Banks island, across which they travelled. De Salis bay was reached on the 3rd January, 1915. The party proceeded across Prince of Wales strait and followed the coast of Victoria island along a 5 or 6 mile stretch, a few miles north of Ramsey island, but no trace of people could be found. Owing to the advance of the winter and the necessity of making preparations for an ice trip to the north over Beaufort sea, the party were obliged to return to Kellett. They arrived at Kellett on the 27th January, where preparations for the ice trip were well under way.

Early in February, 1915, Mr. Stefansson, accompanied by Storker Storkerson, Ole Andreasen, and Charles Thomson, and with a supporting party consisting of Crawford, Natkusiak, and Wilkins, set out from Kellett, on an ice trip to explore Beaufort sea. They followed the shore of Banks island to cape Alfred. From this point the supporting party returned. Mr. Wilkins was instructed to go south to bring the schooner *North Star* to Banks island in the spring for the use of the northern division. For some days after the supporting party left them the ice party found travelling good. They soon came to a part, however, where currents keep the ice broken during the whole year. Soft snow, open leads, and rafters began to cause numerous delays. Progress was further delayed by the dogs becoming footsore.

On the 26th April in N. Lat. 75° 44′, W. Long. 126° 01′ the party met with the only accident of the journey. In passing over some thin ice the sled broke through. Although it was pulled on to solid ice before it had time to sink, the load was saturated with water. Had the sled been lost the ice trip would have ended there. The next day was spent in drying out the load.

On the 28th April they obtained their first "no bottom," sounding at a position 17 miles northwest of N. Lat. 75° 44′, W. Long. 126° 01′. In taking soundings at this point the party improvised a sounding wire by utilizing the 860 meters of good wire which they had, together with strong linen fishing line, making up a line of 1,286 meters. As the above mentioned position was about off Lands End, Mr. Stefansson decided to risk the whole line to try to get bottom. It was all paid out, but no bottom was reached. In taking up the line, however, owing to the great strain on the rather heavy fishing line, it broke and all of the line and some of the wire was lost. Thereafter the party were limited to 828 meters, which had to be the maximum depth of all their future soundings.

Up to the latitude of Lands End, currents had chiefly interfered with progress by creating open water that prevented advance, rather than by carrying the party back, though they drifted back slightly. On account of the devious character of the sled course through rough ice, the keeping of reliable reckoning was difficult.

After the 1st May the drift of the ice was about S.S.W. The current had the trend of the west coast of Prince Patrick island. Owing to the great areas of young ice encountered and the presence of open water to the westward, the party were obliged to postpone further research in that direction until the next year. They changed their course so that they travelled in a general northerly direction which brought them along the west coast of Prince Patrick island. To the west of Prince Patrick island the current was steady and uniform over large areas. By the 20th May open water forced them to seek land-fast ice. Before they could make land they were carried 50 miles south. During May the ice in the open leads did not freeze over sufficiently to permit the passage of the sled. In some instances they were obliged to negotiate the open leads by ferrying themselves across on loose cakes of ice.

Land-fast ice was finally reached some 8 miles off shore from Prince Patrick island in N. Lat. 76° 05′. The supply of kerosene gave out, and cooking was thenceforth done with seal blubber.

In following the coast of Prince Patrick island, north, they found it so low that it was necessary, in many places, to dig deep holes to determine if they were on land or sea.

On the 15th June they reached the islands off cape McClintock. Up to here they had carried on charting of the shore-line.

At cape McClintock they found a cairn in which were discovered the records of F. L. McClintock. These records read as follows:—

"CYLINDER BURIED 10 FEET TRUE NORTH FROM THIS CAIRN.—None.

"TRACES.—None found.

"PARTY: All well. Have examined this shore to the south eastward for about 150 miles. The sled is now returning to the SE. preparatory to crossing to Melville island. I am about to proceed to the westward with a light sledge and two men for three marches and will then return after the main party and make the best of my way to point Nias and Dealy island.

"F. L. McClintock,
"15th June, P.M."

On the reverse side of the sheet there is a printed form. In the appropriate blank spaces are entries showing that the party depositing this record were from the *Intrepid,* that it was deposited on the 15th June, 1853, and it was signed again by McClintock.

The party proceeded three days to the northward, and on the morning of the third day sighted land not shown on any chart. They were at the time near the intersection of 117 W. meridian and the 78th parallel north. The visible portion of the shore appeared in a northeasterly direction from this locality. On the 19th June they arrived at the new land and journeyed in a southeasterly direction along the shore. On the 21st June they crossed a large bay which extended over 20 miles inland. This they named Wilkin's bay, after George H. Wilkins of the expedition. The accompanying chart gives approximately the position of the new land and the shore-line travelled as described by Mr. Stefansson. (See page 79.)

From observations taken from prominent points in the vicinity the land appeared hilly and extended beyond their vision. During the few days which they remained in the vicinity the atmosphere was foggy and they were unable to see far. To the westward, however, the visible portion of the land appeared low and uniformly snow-clad. To the east and northeast partly snow-free hills of some elevation could be seen, apparently at a great distance. The only thing which gave a clue to the direction of the coast to the westward was the water sky over the shore lead, which ran at first in a direction somewhat north by northwest and then turned abruptly to the west. The presumption is that the shore has a somewhat similar trend.

Animal life on the new land is plentiful, seals, caribou, foxes, lemings, hutchins geese, gulls, owls, longspur and buntings having been seen.

It was also ascertained that a continuous chain of small islands or reefs, running west of those marked on the chart, connects Prince Patrick island with the new land. The line where the landfast ice meets the ice that is continually in motion at all seasons passes about 12 miles from the new land. This is probably the average distance of the floe from Prince Patrick island also.

Owing to the advance of the season, the party were obliged to return to Banks island for the summer work. The return journey was uneventful. They returned on the east side of Prince Patrick island. Travelling over the ice, owing to thaws, was bad. They arrived at Kellett on the 8th August, 1915.

The party were absent on this journey 171 days. They took with them very little food supplies, as their sledges were loaded with other requisites for the trip. Yet they were able to live in a healthy condition throughout, and were short of food at no time. This is the longest successful trip by foot on record in the history of Arctic exploration.

A considerable portion of Beaufort sea hitherto unvisited was covered during this trip, and the shores of Prince Patrick island were also closely investigated and sketches of the shore-line were made.

On the 19th August the *Polar Bear,* an auxiliary schooner engaged in fishing and trading, arrived at Kellett. As Mr. Stefansson was anxious to reach the mainland and return to Kellett before the freeze up of Beaufort sea, and as the *North Star* had not arrived at Kellett, he purchased the *Polar Bear* from Captain Lane.

He proceeded to Baillie island, expecting to find the *North Star* there. As it had not yet arrived, he left instructions for it to proceed to Banks island without communicating with him. He then went to Herschel island where the *Ruby,* containing supplies for the expedition, was met. Although a good outfit was sent in that vessel, the supply of sleds and sled material was short. The services of the *Atkon,* a shallow draught power boat, belonging to the English Church Mission, were obtained to send after sledges belonging to the expedition which were up the Mackenzie river.

The *Atkon* left Herschel island on the 22nd August, and Mr. Stefansson in the *Polar Bear* felt on the following day. Upon his arrival at Baillie island he purchased the *Gladiator,* a small auxiliary schooner adapted to work in the ice, to use between the winter base at Kellett and the more northerly base to be established. The presence of the *Gladiator* at Kellett would leave the members stationed there independent of the rest of the expedition. It would also afford protection to the party further north in the event of damage to the *Polar Bear.*

The *Gladiator* was sent in search of the *Atkon,* which had not been heard of since leaving Herschel island. If the *Atkon* had not reached Kittegaryuit, where the sleds were to be obtained, the *Gladiator* was to pick them up and return to Baillie island. It was then to be utilized in shipping distillate to Kellett and, in company with the *North Star,* was to proceed to the north end of Banks island, the *North Star* having arrived at Baillie island and proceeded to Banks island in accordance with instructions. According to the latest report the *North Star* sailed from Kellett on the 24th August for Prince Patrick island. If the party in her were unable to reach so northerly a point they were to establish a base in Northern Banks island.

No uneasiness was felt as to the fate of the *Atkon,* as weather conditions were ideal and a fair wind prevailed. The vessel probably met with some minor accident which necessitated landing. The members could easily join the southern division, as she probably managed to get past the Mackenzie.

Mr. Stefansson, in the *Polar Bear,* set out from Kellett for Northern Banks island on the 9th September. From there they planned to establish a base on Prince Patrick island early in the fall of 1915 from which the expeditions in the winter and early spring could be carried out.

The party in the *Polar Bear* however in endeavouring to get north on the east side of Banks island were able to proceed only as far as Princess Royal island, Prince of Wales strait, where they wintered. The *North Star* was unable to get further north than Robilliard island on the north west coast of Banks island where the party wintered. The ice trip over Beaufort sea to be undertaken in February or March of 1916 with the *North Star* as a base could not be carried out owing to the loss of some dogs and the unfit condition of others. Under the circumstances Mr. Stefansson did not wish to attempt a trip over the open sea. He, with a party, however, set out in April for the new land discovered the previous year. At the time of the latest reports received he had attained the north west coast of this land. After carefully investigating this land the party were to return south as far as Melville island in the fall of 1916, where the members of the *Polar Bear* crew who had not gone north were to store sufficient provisions to carry them through the winter. This base was to be located at Winter Harbour, Melville island. The time of the return to civilization of the whole division is not definitely known but will probably be late in the fall of 1916 or in the summer of 1917.

The health of the northern division of the expedition is reported to be excellent. With the exception of the men lost in attempting to reach land from the *Karluk* and J. Jones, engineer of the *Polar Bear,* who died of heart disease, there have been no deaths in this division.

SOUTHERN DIVISION.

The southern division of the expedition sailed from Victoria in C.G.S's. *Alaska* and *Mary Sachs* on the 19th and 20th July, 1913, respectively. Owing to ice conditions the party were unable to reach Coronation gulf, where their winter quarters should have been established, and they were obliged to winter at Collinson point, Alaska. As previously reported, the southern party were joined at Collinson point by Mr. Stefansson. Throughout the winter and spring of 1914 the scientific members carried out investigations in that vicinity.

Early in June, 1914, Geo. H. Wilkins was sent to Demarkation point to take charge of the *North Star* which had been purchased by Mr. Stefansson.

On the 7th July the *Alaska* and *Mary Sachs* were free from the ice. The party were delayed until the 25th July on account of ice holding close to the shore outside the harbour. On the 25th July they left Collinson point. They reached Demarkation point on the 4th August, where they took up the supplies purchased by Mr. Stefansson. They arrived at Herschel island on the 5th August, where they met Mr. Wilkins with the *North Star*.

On the 11th August Geo. H. Wilkins, in charge of a party in the *Mary Sachs* sailed for Banks island. This party purposed to locate the Stefansson party if possible. Proceedings after their arrival at Kellett, Banks island, have been reported in connection with the northern division.

The members of the southern division left Herschel island on the 17th August, and Bailey island on the 22nd August. On the 24th August the party came to a harbour near Chantry island, which is unmarked on the charts. This harbour is situated about 15 miles east of Cockburn point, on the mainland, and on the south side of Dolphin and Union strait about midway between cape Bexley and cape Krusenstern, directly south of Liston and Sutton islands. The harbour is practically land-locked, with an average depth of four fathoms. The division made their headquarters for the coming winter at this point and named it Bernard harbour.

During the summer the sea was practically clear of ice east of Herschel island, while west of that place the ice remained closely packed.

On the 6th September, Dr. Anderson, accompanied by Messrs. Sweeney, Castel, Blue, Sullivan, and two Eskimos, set out in C.G.S. *Alaska* from the new base for Herschel island for supplies. They arrived at Herschel island on the 11th September and loaded the required supplies. On the return voyage the vessel was frozen in at Bailey island.

Leaving Mr. Sweeney and Engineer Blue in charge of the vessel, Dr. Anderson, with the remaining members of the party, set out on foot along the coast on the 20th November to join their division at Bernard harbour. They arrived at the base on the 25th December.

During the winter Dr. Anderson, with Aarnaut Castel, attempted a trip to fort Noman to despatch mail. Owing to rough ice on the Coppermine river, and deep snow on the Deas river, they were unable to carry out the journey. They returned to the base, arriving on the 1st April, where they found that the winter's work had been carried on in a satisfactory manner.

John R. Cox and D. Jenness surveyed the coast in detail from the winter base east along the north side of the strait to cape Krusenstern and as far as point Lockyer.

D. Jenness during the winter succeeded in bringing to light much information in connection with the hitherto little known groups of Eskimos in this region. He found that the groups are not so definite as was formerly supposed, but that they are pretty thoroughly mixed. He took gramophone records of Eskimo songs and spoken words and he succeeded in learning many of the different dialects spoken by the natives. He carried out all the trading with the Eskimos, and collected large numbers of specimens of their tools, weapons, clothing, etc. In the early spring he made arrangements

to go to Victoria island to study the ethnology of the natives there. He set out for Victoria island on the 18th April, where his investigations should add materially to the already exhaustive information compiled. He was to return to the base as soon as the sea would freeze in Dolphin and Union strait in the fall of 1915.

Kenneth G. Chipman and Dr. J. J. O'Neill started on the western survey from Bernard harbour on the 17th March. It had been decided that Mr. Chipman should work with Dr. O'Neill in covering this region, as they had already made a preliminary reconnaissance by sled as far west as Keat's point in November and December, 1914, and were familiar with the features of the problems to be encountered. They went west as far as the southwest portion of Darnley bay in order to connect with the previous surveys of the cape Parry peninsula. From this point the survey was carried eastward during April, the season being much further advanced than it was farther east during the same period. As there are no rock exposures near the coast on the south side of Darnley bay, Dr. O'Neill was able to remain on the east side of the bay to carry on geological investigations. One of the largest unnamed rivers flowing into Darnley bay was ascended for some distance. Considerable assistance was obtained from the friendly aid of Capt. C. Klengenberg, an ex-whaler and trapper, and from a family of Alaskan Eskimos, who were temporarily located on the east side of the bay. Captain Klengenberg's son acted as interpreter for the party.

The rock exposures around the coast were found to be quite continuous from the south of cape Lyon around to the east of Dewitt Clinton point, and Dr. O'Neill was able to follow them up and made a practically continuous section, including one or two important contacts on the diabase with the prevailing dolomitic and conglomerate rocks of that section of the coast. A good series of geological specimens was collected by Dr. O'Neill at all points touched, including certain fossils from the superficial formations around Darnley bay. Dr. Anderson set out from Bernard harbour on the 21st April and met Messrs. Chipman and O'Neill coming east near Deas Thompson point on Amunsden gulf. The Eskimos, Ikey and Palaiyak, who were with the party, were sent on to Bailey island with the mail, and to help on the *Alaska*. Dr. Anderson returned to the eastward with the survey party.

Mr. Chipman reports that the whole country surveyed is evidently a portion of the coastal plain described by Tyrrel (Tyrrel, J. B., report on the Doobaunt, Kazen and Ferguson rivers, volume 9, page 158), which west of Hudson bay reaches an elevation of 500 to 600 feet, and varies in width from 75 to 300 miles.

Inland on the east side of Darnley bay beach gravels and terraces were found above 500 feet, and everywhere east of that point the country for some distance from the coast is of the same type. From Darnley bay to the east of Deas Thompson point there are a number of high points but no definite system of range is apparent. The highest of these points are near the Croker and Inman rivers. The coast has a well-defined shore-line of rock or boulders and gravel. None of the rivers flowing to the coast east of Darnley bay extend any great distance inland, for their valleys are small, and both valleys and beds indicate a very heavy run-off in a short time. The Croker is the largest river, with its delta built out a short distance, and occupies a triangular valley some 4 miles wide at the coast, and extending inland for 3 or 4 miles. The river spreads out over its delta, and none of its channels are very definite. The beds of this and other rivers are composed of heavy boulders, and the quick run-off is further indicated by the continuous sand bars built across their mouths when the water is low in summer and fall. At the back of Darnley bay two fairly large rivers flow to the coast.

The survey of this entire stretch of coast line was completed northeast to the base station to connect with the survey made by Mr. John R. Cox. The coast line as traversed from cape Lyon east is seen to be somewhat straighter than the charts show.

Messrs. Chipman, O'Neill, and Anderson reached the station at Bernard harbour on the 24th May. Throughout the spring unusually mild and clear weather prevailed,

which enabled the different parties to carry out their work to the best possible advantage. John R. Cox, with Jas. Sullivan as camp assistant, on the 16th April, took up the survey which he had left off at point Lockyer, Coronation gulf. He continued to survey around Basil Hall bay, cape Hearne, cape Kendall, up into Back's inlet, and up the Rae river. He ascended and surveyed the Rae river for about 70 miles until it forked into two small creeks. Mr. Cox found rather large willows at frequent intervals on the Rae river after getting some way from the coast, but no spruce or other timber was found. After reaching the head of the Rae river, he made a six-day portage across country with his sled, striking the Arctic coast on the south side of Stapylton bay. He also surveyed a section of the coast from Young point (the western end of Stapylton bay) east of the home station, reaching Bernard harbour on the 25th May. He found that South bay (southwest of Cape Bexley) is somewhat deeper, and Stapylton bay is not so deep as the existing charts indicate. Maps covering the results of these surveys are in course of preparation.

Mr. Fritz Johansen, marine biologist, botanist, and entomologist, carried on extensive work throughout the year. He collected and preserved considerable marine and fresh-water biological material from the harbour and from the neighbouring lakes, ponds, and streams. A practically complete collection of the local flora has been preserved, and the large collections made at Collinson point, Alaska, and Herschel island, Yukon territory, have been arranged. A good many interesting entomological specimens were obtained, and he also succeeded in rearing some larvæ collected the previous season at Collinson point, and working out some hitherto unknown points in the life history of the various forms of Arctic insects. He obtained interesting data in connection with the various insects at the northern limit of spruce trees during a short trip up the Coppermine river, in February. About 500 specimens of mammals and birds, besides a number of sets of eggs, with nests, were collected. Photographs of the nests of Arctic birds were also taken.

On the 21st May, 1915, George H. Wilkins, James R. Crawford, and an Eskimo, arrived at Bernard harbour from Kellett, the base of the northern division; they came on foot from Kellett, making the journey across the southern end of Banks island, Prince of Wales strait, Prince Albert Sound and Dolphin and Union strait, in twenty-five days.

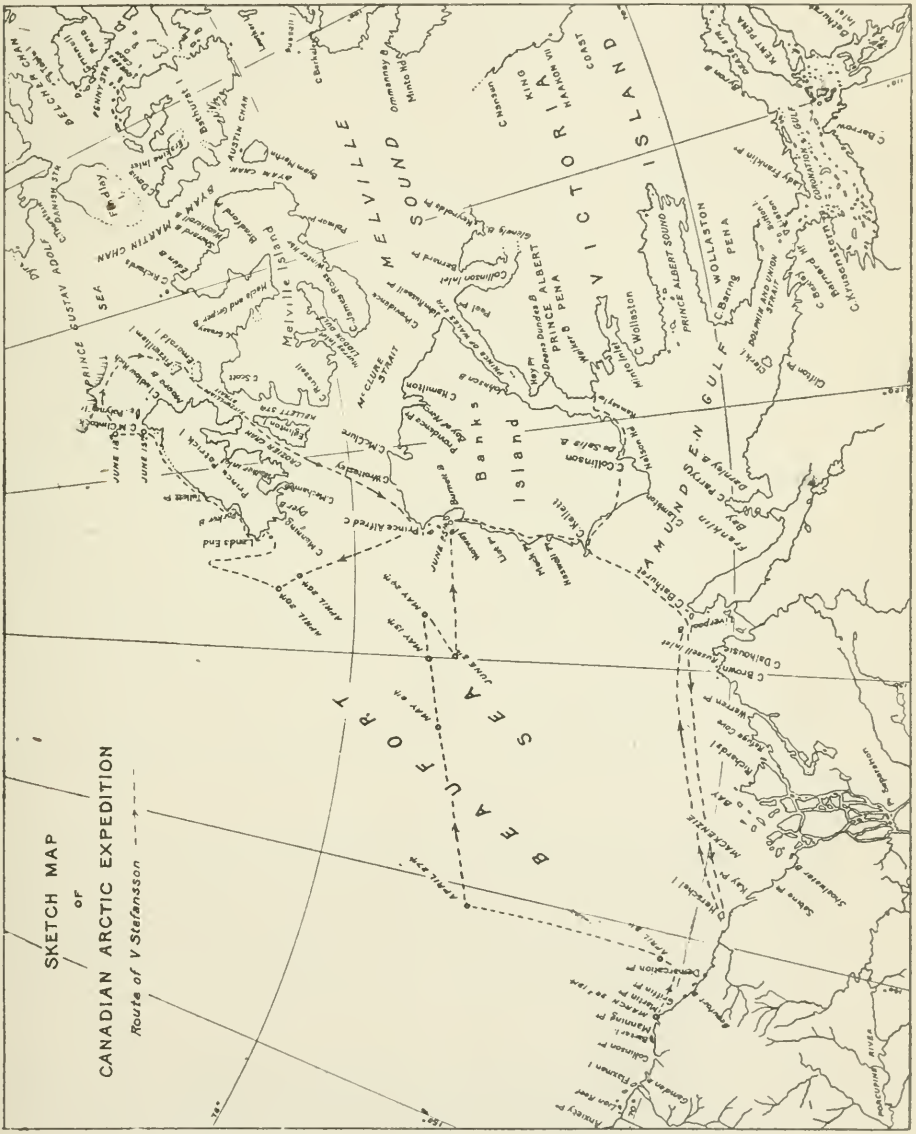
Mr. Stefansson had sent this party in charge of Wilkins to the southern base to bring the *North Star* to Kellett for the use of the northern division as soon as possible after the opening of navigation.

Mr. Wilkins brought a cinematograph outfit with him from the northern party base and exposed about 2,000 feet of film, principally of views of the local Eskimos. He has also made a very good series of portrait studies of the Eskimos, men, women, and children, for Mr. Jenness' ethnographical work, and has taken photographs of growing plants, flowers, insects, birds, mammals, etc., which are of great scientific as well as of artistic value.

During the summer of 1915 it was proposed to carry on the survey of the coast east of Bernard harbour as far as Cape Barrow. Mr. J. R. Cox and Dr. J. J. O'Neill set out from Bernard harbour to the eastward on the 9th June. The party were to proceed by sled, if possible, to the Tree river or the Unialik, or one of the other small rivers on the south side of Coronation gulf east of the Coppermine river. During the early summer they were to carry on geological work up some of these rivers as far as they would judge desirable and then eastward along the coast as far as Cape Barrow on the western extremity of Bathurst inlet. At Cape Barrow the circumstances of the season and the condition of the party and boats were to determine the extent of the survey which would be made of Bathurst inlet during the latter part of the summer. They desired to finish as much as possible of the eastern end of the assigned territory during the summer, leaving the region nearer Bernard harbour for the early fall or coming spring when the unfinished ends could be worked to better advantage from the

base station. To enable these arrangements to be carried out it was necessary that the *North Star* be utilized to ship supplies of provisions and gasolene, upon the opening of navigation, to designated points along the shore, where caches were to be made.

It was also essential that the party should have a boat to assist in carrying out their work. As the *North Star* was the only vessel available at the southern base, the *Alaska* being at Bailey island bound for Herschel island before coming to Bernard harbour, it was necessary to use it to carry out the work in connection with the eastern survey before turning it over to Mr. Wilkins to be taken to Banks island. The *North Star* was loaded for her trip east before the break up of the ice, so that she would be able to proceed immediately upon the opening of navigation.


SKETCH MAP
OF
CANADIAN ARCTIC EXPEDITION
Route of V Stefansson
BEAUFORT SEA
MELVILLE SOUND
VICTORIA ISLAND
Banks Island
AMUNDSEN GULF
PRINCE ALBERT SOUND
PRINCE GUSTAVE ADOLF SEA
M'CLURE STRAIT
PRINCE ALBERT SOUND
COLVILLE
PENA
Bailey I.
Herschel I.
Baring I.
Barrow
Point Barrow
Cape Parry
Dolphin and Union Strait
Franklin Bay
Darnley Bay
Cambridge Bay
Prince Albert Sound
Minto Inlet
Wollaston Peninsula
Prince Albert Peninsula
Prince Alfred C.
Cape Kellett
Cape Collinson
Cape Hamilton
Cape Mclure
Cape Kellett
Cape Collinson
Cape Parry
Cape Bexley
Cape Baring
Cape Barrow
Cape Bathurst
Cape Dalhousie
Cape Brown
Cape Warren
Cape Lyon
Cape Kellett
Cape Collinson
Cape Hamilton
Cape Mclure
Cape Prince Alfred

The summer of 1915 in this area was, however, very cold, and the ice melted slowly. Bernard harbour was free of ice from the 20th July, but Dolphin and Union strait was blocked. A steady strong northwest wind, practically a gale, for three or four days kept drifting the ice down into and blocking up the strait until the 1st August.

On the 9th August the vessel was worked out through the ice east of Chantry island and then north of Lambert island, thence around cape Krusenstern.

On the 10th August, ice, lightly massed, was found on the south shore from Chantry island to the south side of Lambert island and to cape Krusenstern. After passing cape Krusenstern very little ice was encountered and Coronation gulf was entirely free to the eastward.

The party in the *North Star* reached Epworth point (Tree river) and found that Dr. O'Neill and J. R. Cox had worked in that region from early in June until they got their boat out in Coronation gulf on the 30th July, and then had gone east to cape Barrow. Upon arrival at cape Barrow a beacon was found stating that the survey party had reached that point on the 2nd August. Caches of provisions and gasolene were put down at Epworth point and at cape Barrow. The *North Star* was then handed over to Mr. Wilkins to be taken to Banks island, and the party continued the survey further eastward, using the gasolene launch and a skin boat. The *North Star* proceeded to Bailey island, where instructions had been left by Mr. Stefansson to proceed immediately to Banks island and thence as far north as possible.

Messrs. K. G. Chipman, J. R. Cox, J. J. O'Neill, and Dr. R. M. Anderson, composing the eastern survey party, carried on survey work along the coast in the vicinity of cape Barrow throughout the summer. They returned to the base at Bernard harbour in the fall where the different surveys were completed to the base station.

The survey of the mainland coast line in detail was completed from the west side of Darnley bay to a point well down into Bathurst inlet including a large number of the islands in the Coronation Gulf region, as well as large portions of several of the hitherto unexplored rivers of the region, including one of the Darnley Bay Rivers, the Croker river flowing into Amunsden gulf, and the Rae river and the Tree river flowing into Coronation gulf. The geological features of the region have been investigated and the relation of the different formations studied in detail at the most important points of contact.

The geological investigation included the detailed mapping and estimation of the available copper-bearing rock in a great new area hitherto little known in the Bathurst inlet region. Dr. O'Neil reports vast quantities of copper-bearing rock in which he saw native copper in this region.

Mr. D. Jenness, ethnologist, made a careful study of the language, manners, customs, etc., of the natives of Victoria island as well as a collection of specimens of their tools and dishes, and has taken gramophone records of their dance songs and shamanistic performances.

The marine biologist, Mr. Frits Johansen, has also made extensive collections of Arctic insects and other species of the little known animals of the north.

The southern division should complete the survey of the territory allotted to them during the summer of 1916.

With the exception of engineer Blue, who died of scurvy during the winter of 1913-14, the health of the southern division of the expedition is reported as very good.

The expedition, both northern and southern divisions, are to return from the north in the fall of 1916 or early in 1917.

Very valuable scientific work has been carried on by both the northern and southern divisions, and much useful information, both as to the nature of the areas investigated and the inhabitants of the Far North, has been obtained.

Complete reports covering the whole period from the departure until the return of the expedition will be prepared upon the arrival of the members from the north.

LIFE-SAVING SERVICE.

OTTAWA, 1st April, 1916.

The Deputy Minister,
Department of the Naval Service,
Ottawa.

SIR,—I have the honour to report below with reference to the Life-saving Service of Canada for the fiscal year ending 31st March, 1916.

Every year now the work of these stations seems to be gradually lessening and the life-boats are used more for the salvage of property in most cases than for saving life.

The station at Kincardine, Ont., has been done away with, as the buildings were badly in need of repair and the services rendered did not seem sufficient to justify further expenditures.

Frequent inspections of the various stations have taken place during the year, and the regular drills have been carried out.

NOVA SCOTIA.

Bay View.—Permanent crew. Some fourteen fishing boats have been towed to safety; the life-boat also succeeded in towing the schooner *Cora and Gertie* off the rocks west of Digby gut, after six hours' work, on the 10th February, 1916.

Herring Cove.—Volunteer crew. This crew succeeded in saving part of the cargo of the ss. *Perry,* which ran ashore on the 7th June, 1915, in Chebucto harbour, and became a total loss. They were also of considerable assistance in running lines, standing by, etc., for almost the whole four days while the oil tank s.s. *Potomac* was ashore at Willis' point in February, 1916.

Seal Island.—Subsidized volunteer crew. Went to the assistance of the fishing schooner *Little Ruth,* grounded on the southern side of the island in May, 1915, and towed her off. Landed a considerable amount of lumber from the abandoned schooner *Lewis K. Cottingham.*

Whitehead.—The volunteer crew at this station succeeded in towing the schooner *James U. Thomas* off when it was stranded on the eastern side of the harbour in a dangerous position in November, 1915.

NEW BRUNSWICK.

Cape Tormentine.—This volunteer crew assisted in refloating a steam trawler which grounded on Jourmain Island reef on the 2nd August, 1915.

Richibucto.—Permanent crew. Various disabled fishing boats received assistance from this station; also the barkentine *Ocean Ranger* and the schooner *Nova Zembla* were refloated. The schooners *Bearer* and *Seedonis* were rendered assistance.

ONTARIO.

Point Pelee.—Permanent crew.—Stood by for two days, when the schooner *Phillip Minch* grounded in a fog on the southeast shoal, on 4th May, 1915. In December the *Victory* grounded on the east side of Point Pelee; the life-saving crew procured a tug and she was towed off after two days. A boy was also saved from drowning in July by one of the members of this crew.

Toronto.—Permanent crew. On the 3rd August, 1915, in the worst storm of the season the steamer *Alexandria* went ashore; the life-saving crew took off four members of the crew, including the captain, the others having left the ship previously. This station, which is very up-to-date and well equipped, is kept busy during the season of navigation in watching the various pleasure boats which are so numerous in that vicinity. Last year 107 launches, yachts, sail-boats, etc., grounded, capsized or otherwise disabled, were assisted, besides eleven hydroplanes, and nineteen injured persons; twenty-one drowned persons were also recovered, and the pulmotor was used thirteen times.

BRITISH COLUMBIA.

Banfield.—Permanent crew. The gasolene launch *Sarita,* with four people on board, was taken off a reef near cape Beale and towed to safety, on the 28th June, 1915. In September the vessel *Dexter* floated on a reef at Blizzard island and the crew succeeded in taking her off and towing her to safety. Several launches also received assistance.

Clayoquot.—Permanent crew. The Anglican Mission launch went ashore on the rocks near Tofino on 16th November; the lifeboat took two men off, and at high water next day succeeded in floating the vessel. On 25th November crew was called to the assistance of the *Carelmapu* and succeeded in saving five men; eighteen persons were lost.

Ucluelet.—Various launches, etc., have received assistance from the permanent crew at Ucluelet, which crew was also called out to the *Carelmapu.* The coxswain reports the work on the station as being mainly preventive, the crew constantly rendering assistance to vessels before the danger has become too great.

The attached statement shows the number of stations in each province, with the number of their crew, name of coxswain, description of boat, and date of establishment.

I have the honour to be, sir,
Your obedient servant,

C. E. KINGSMILL, *Vice-Admiral,*
Director of the Naval Service.

LIFE-SAVING STATIONS OF CANADA.

No.	Stations.	Established.	Coxswain.	Crew.	Description of Boat.
	New Brunswick.				
1	Little Wood Is. (P)	1910	Harry Harvey	8	Beebe-McLellan twin screw motor boat; schooner chartered for winter months.
2	Richibucto (P.N.)	1907	Thos. Legoof	7	Race Point surf-boat 24 ft. long.
3	Point Escuminac	1908	E. F. Flieger	7	Beebe-McLellan self bailing.
4	Cape Tormentine	1912	I. Allen	7	" " "

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LIFE-SAVING STATIONS OF CANADA—*Concluded.*

No.	Stations.	Established.	Coxswain.	Crew.	Description of Boat.
	Nova Scotia.				
5	Baker's Cove	1886	R. L. Baker	7	Dobbin's pattern self-righting, 28 ft. long.
6	Blanche	1889	Edgar Swaine	7	Beebe-McLellan surf-boat, self-bailing, 25 ft. long.
7	Clark's Harbour	1900	Byron Swim	7	Beebe-McLellan, self-bailing, 25 ft. long low ends.
8	Canso	....	J. J. Barrigan	7	Dobbin's pattern, surf-boat, self-bailing, 25 ft. long.
9	Devil's Island	1885	B. H. Henneberry	7	Beebe-McLellan surf-boat, self-bailing, 25 ft. long.
10	Duncan Cove	1886	J. W. Holland	7	" " "
11	Herring Cove	1885	Edw. V. Dempsey	7	Dobbin's pattern self righting and bailing, 25 ft. long.
12	Pictou Island	1889	Duncan McCallum	7	" " "
13	Port Mouton	1889	Walter Cook	7	Beebe-McLellan surf-boat, self-bailing, 25 ft. long.
14	Scattarie	1885	Jas. Nearing	7	Beebe-McLellan boat on East side.
15	Seal Island, (P)	1880	Smith G. Penney	7	Beebe-McLellan boat on West side.
16	Whitehead	1890	John Phalen	7	Dobbin's pattern surf-boat, self-bailing, 25 ft.-long.
17	Cheticamp, (P.N.)	1911	L. J. AuCoin	7	Beebe-McLellan, twin screw motor boat.
18	Bay View, Digby, (P.N.)	1911	J. W. Hayden	7	36 ft. self-bailing, self-righting power boat.
19	Westport, Brier Is	....	Ralph Welch	–	Subsidized motor boat.
	P. E. Island.				
20	Priest Pond	1909	Chas. Campbell	12	Board of Trade rocket apparatus.
21	Charlottetown	1907	E. White	6	Beebe-McLellan self bailing.
22	Souris	1907	Pius Cheverie	7	" " "
23	Cascumpeque	....	Joshua Hutt	8	" " "
24	Alberton	1907	S. Gallant	12	Board of Trade rocket apparatus.
	British Columbia.				
25	Banfield, (P)	{1909 / 1907}	Geo. Murray	11	Self-righting, self-bailing, 36 ft. power boat.
26	Ucluelet, (P)	1908	F. Tyler (act.)	9	Doherty's Improved Beebe-McLellan, 25 ft. long.
27	Clayoquot, (P)	1908	J. McLeod	8	" " "
	Ontario. Great Lakes.				
28	Cobourg	1882	D. Rooney	8	Dobbin's pattern self-righting and bailing.
29	Collingwood	1885	G. F. Watts	7	Beebe-McLellan self-bailing surf-boat.
30	Goderich	1886	Malc. McDonald	7	Surf-boat.
31	Long Point, (P.N.)	1902	Jas. Smith	9	"
32	Point Pelee, (P.N.)	1900	L. Wilkinson	7	"
33	Port Hope	1889	John McMahon	7	Dobbin's pattern, self-righting and bailing.
34	Port Stanley	1885	W. Brown	7	Beebe-McLellan surf-boat, self-bailing, 25 ft. long.
35	Toronto, (P.N.)	1883	W. F. Chapman	14	Two motor launches.
36	Consecon	1898	R. Bedford	7	Dobbin's pattern, self-righting and bailing.
37	Southampton	1907	Hector McLeod	7	Beebe-McLellan, surf-boat, self self-bailing.

NOTE.—Stations marked "P" have permanent crews, always on duty; those marked "P.N." have crews always on duty during the season of navigation, The other stations simply have volunteer crews, which drill twice a month and are called out on the occurrence of a wreck.

RADIOTELEGRAPH SERVICE.

The Deputy Minister,
Department of the Naval Service,
Ottawa.

SIR,—I have the honour to present herewith the annual report of the Radiotelegraph Branch for the fiscal year ending the 31st March, 1916.

The total number of stations in operation in the Dominion and on ships registered therein is as follows:—

Government commercial stations	1
Coast stations	42
Government ship stations	24
Licensed ship stations	64
Public commercial stations	3
Private commercial stations	4
Radio telegraph training schools	2
Licensed experimental stations	2
Total	142

The following list shows the location of the land and coast stations in Canada, their range, call signals, owners, and by whom they are operated:—

COAST STATIONS for Communication with Ships.

EAST COAST.

Name.	Where situated.	Owned by.	Operated by.	Range in nautical miles.	Call Signal.
Belle Isle, Nfld.	Belle Isle Straits.	Dominion Government.	Marconi Wireless Tel. Co. of Canada.	250	VCM
Pt. Amour, Nfld.	" "	" "	" "	150	VCL
Pt. Riche, Nfld.	Gulf of St Lawrence.	"	"	250	VCH
Harrington, P.Q.	"	"	"	150	VCJ
Heath Pt., P.Q.	Gulf of St Lawrence. (Anticosti Isld.)	"	"	250	VCI
Cape Ray, Nfld.	Cabot Straits.	"	"	350	VCR
Cape Race, Nfld.	North Atlantic.	"	"	400	VCE
Grindstone Island, P.Q.	Gulf of St. Lawrence (Magdalen Isld.).	"	"	200	VCN
Fame Pt., P.Q.	Gulf of St. Lawrence.	"	"	250	VCG
Clarke City, P.Q.	"	"	"	250	VCK
Father Pt., P.Q.	River St. Lawrence.	"	"	250	VCF
Grosse Isle, P.Q.	"	"	"	100	VCD
Quebec, P.Q.	"	"	"	150	VCC
Three Rivers, P.Q.	"	"	"	150	VCB
Montreal, P.Q.	"	"	"	200	VCA
Cape Sable, N.S.	North Atlantic.	"	"	250	VCU
Partridge Isld., St. John, N.B.	Entrance St. John Harbour, N.B.	"	"	250	VCV
Cape Bear, P.E.I.	Northumberland Strait.	"	"	150	VCP
Camperdown, N.S.	Entrance to Halifax Harbour.	"	"	250	VCS
Sable Island, N.S.	North Atlantic.	"	"	300	VCT
Halifax, N.S.	Halifax Dockyard	"	Department of the Naval Service.	100	VAA
Pictou, N.S.	Northumberland Strait.	Marconi Wireless Tel. Co. of Canada.	Marconi Wireless Tel. Co. of Canada.	100	VCQ
North Sydney, C.B.	North Sydney, C.B.	"	"	100	VCO

Coast Stations for Communication with Ships—Concluded.

GREAT LAKES.

Name.	Where Situated.	Owned by.	Operated by.	Range in nautical miles.	Call Signal.
Port Arthur, Ont.	Port Arthur, Ont.	Dominion Government.	Marconi Wireless Tel. Co. of Canada.	350	VBA
Sault Ste. Marie, Ont.	Sault Ste. Ont.	"	"	350	VBB
Tobermory, Ont.	Entrance Georgian Bay.	"	"	350	VBD
Midland, Ont.	Georgian Bay.	"	"	350	VBC
Point Edward, Ont.	Lake Huron.	"	"	350	VBE
Port Burwell, Ont.	Lake Erie.	"	"	350	VBF
Toronto, Ont.	Toronto Island, Ont.	"	"	350	VBG
Kingston, Ont.	Barriefield Common.	"	"	350	VBH

WEST COAST.

Gonzales Hill, B.C. (Victoria).	Victoria, B.C.	Dominion Government.	Department of the Naval Service.	250	VAK
Pt. Grey, B.C. (Vancouver).	Entrance Vancouver Harbour.	"	"	150	VAB
Cape Lazo, B.C.	Strait Georgia, near Comox, B.C.	"	"	350	VAC
Pachena Pt., B.C.	West Coast Vanvoucer Isld.	"	"	500	VAD
Estevan Pt., B.C.	" "	"	"	500	VAE
Triangle Isld., B.C.	South of Hecate Str.	"	"	450	VAG
Ikeda Head, B.C.	South of Moresby Island, Q.C.I.	"	"	250	VAI
Dead Tree Pt., B.C.	South of Graham Isld., Q.C.I.	"	"	200	VAH
Digby Island, B.C., Prince Rupert.	Digby Isld., Entrance Prince Rupert Har.	"	"	250	VAJ
Alert Bay, B.C.	Cormorant Isld., B.C.	"	"	350	VAF

HUDSON BAY.

Port Nelson.	Hudson Bay.	Dominion Government.	Department of the Naval Service.	750	VBN

LAND STATIONS.

Le Pas, Man.	For communication with Port Nelson only.	Dominion Government.	Department of the Naval Service.	750	VBM

Licensed Commercial Stations.

Name.	Where Situated.	Owned by.	Operated by.	Range in nautical miles.	Signal. Call
Public Commercial.					
Glace Bay, C.B.	Near Glace Bay, C.B.	Marconi Wireless Tel. Co. of Can., Ltd.	Owners	3,000	G.B.
Louisburg, C.B.	Cape Breton	"	"	Reception	only
Newcastle, N.B.	New Brunswick	Universal Radio Synd.	"	2,500	CL
Private Commercial.					
Ocean Falls, B.C.	Ocean Falls, B.C.	Ocean Falls	Owners	150	CD.
Powell River, B.C.	Powell River, B.C.	Powell River Co.	"	30	CH
Glengarry, Alta.	Glengarry Sub. Calgary.	Alberta Oil Co.	"	50	CJ
Section 11, Township 23	Sec. 11, Township 23	"	"	50	CK

Licensed Experimental Stations.

Name.	Where Situated.	Owned by.	Call Signal.
Marconi Test Room	Rodney St., Montreal	Marconi Wireless Telegraph Co. of Canada, Ltd.	XWA
79th Overseas Btln.	Brandon, Man.	79th Overseas Btln.	XWB

Radiotelegraph Training Schools.

Name.	Where Situated.	Call Signal.
Dominion Telegraph & Wireless Institute	Vancouver, B.C.	Licensed for reception only.
Columbian College of Wireless	Victoria, B.C.	

Amateur Radiotelegraph Stations.

All amateur stations were closed down at the outbreak of hostilities.

Licensed Ship Stations.

The following list shows the vessels of Canadian register which are equipped with radiotelegraph apparatus, their call signal and by whom they are owned and operated:—

Name of Ship.	Port of Registry.	Name of Owners.	Name of Company operating the Station.	Call Signal.
SS. Assiniboia	Montreal, P.Q	Can. Pacific Railway.	Marconi Wireless Tel. Co. of Can	VGI
" Alberta	"	"	"	VFQ
" Athabaska	"	"	"	VGG
" Manitoba	"	"	"	VGH
" Keewatin	"	"	"	VGC
" Boston	Yarmouth, N.S	"	"	VFS
" Hamonic	Collingwood, Ont	Northern Nav. Co	"	VGD
" Huronic	"	"	"	VGE
" Province	Port Arthur, Ont	Great Lakes Towing and Wrecking Company	"	VFR
" Empire	"	"	"	VFP
" Salvor	Victoria, B.C	B.C. Salvage Co	Owners	VFV
" Prince Albert	Prince Rupert, B.C	Grand Trunk Pac. Ry.	"	VFL
" Prince John	"	"	"	VFM
" Florence	Toronto, Ont	T. Eaton	"	VFT
" Princesse Beatrice	Victoria, B.C	Can. Pacific Railway.	M. W. T. Co. of C	VFC
" Princess Charlotte	"	"	"	VFE
" Princess May	Vancouver, B.C	"	"	VFH
" Princess Royal	Victoria, B.C	"	"	VFG
" Tees	"	"	"	VFK
" Camosun	Vancouver, B.C	Union Steamship Co.	Owners	VFZ
" Princess Adelaide	Victoria, B.C	Can. Pacific Railway.	Marconi Wireless Tel. Co. of Canada	VFA
" Princess Mary	"	"	"	VFB
" Princess Alice	"	"	"	VFD
" Princess Ena	"	"	"	VFJ
" Princess Sophia	"	"	"	VFI
" Saronic	Sarnia, Ont	Northern Nav. Co	"	VGF
" Lord Strathcona	Quebec, P.Q	Quebec Salvage Co	"	VFX
" A. W. Perry	Halifax, N.S	Plant Line	"	VFW
" Royal Edward	Toronto, Ont	Canadian Northern SS.	"	VGB
" Royal George	"	"	"	VGA
" St. Ignace	Port Arthur, Ont	Great Lakes Towing and Wrecking Co	"	VGL
" Chelohsin	Vancouver, B.C	Union Steamship Co.	Owners	VGN
" Morwenna	Montreal, P.Q	The N.Y. Nfld. Halifax Shipping Co	Marconi Wireless Tel. Co. of Canada	VFN
" Prince Arthur	Yarmouth, N.S	Boston and Yarmouth SS. Co.	"	VGJ
" Prince George	"	"	"	VGK
" Halifax	Halifax, N.S	C. A. Plant SS. Co	"	VGP
" Douglas H. Thomas	Sydney, C.B	Dom. Coal Co	"	VGR
" Princess Maquinna	Victoria, B.C	Can. Pacific Railway.	"	VGT
Car Ferry "Ontario No.1"	Montreal, P.Q	Ont. Car Ferry Co	Owners	VGU
SS. Naronic	Port Arthur, Ont	Northern Nav. Co	Marconi Wireless Tel. Co. of Canada	VGW
" Seal	Windsor, N.S	Halifax Trading and Sealing Co.	"	VGV
" Deliverance	Liverpool, N.S	Southern Salvage Co.	M. W. T. Co	VFO
" Bessie Dollar	Victoria, B.C	Dollar SS. Lines	Owners	VFF
" Venture	Vancouver, B.C	Union SS. Co	"	VGX
" Yarmouth	Yarmouth, N.S	C.P.R	M. W. T. Co	VGY
" Princess Patricia	Victoria, B.C	"	Owners	VGZ
SS. Dalhousie City	Toronto, Ont	N. St. C. & T. N. Co.	M. W. T. Co	VEA
" Corona	"	C. SS. Lines	"	VEB
" Kingston	"	"	"	VEC
" Toronto	"	"	"	VED
" Hazel Dollar	Victoria, B.C	Dollar SS. Lines	"	VEE
" Chippewa	Toronto, Ont	"	"	VEH

LICENSED SHIP STATIONS—*Concluded.*

Name of Ship.	Port of Registry.	Name of Owners.	Name of Company operating the Station.	Call Signal.
SS. Garden City	Toronto, Ont.	N. St. C. & T. N. Co.	M. W. T. Co.	VEI
" Chicora	Halifax, N.S.	C. SS. Lines.	"	VEJ
" Macassar	Hamilton, Ont.	"	"	VEK
" Cayuga	Toronto, Ont.	"	"	VEL
" Majestic	Collingwood, Ont	"	"	VEM
" Cascapedia	Quebec, P.Q.	"	"	VEO
" Desola	Montreal, P.Q	Atlantic Fruit Co.	"	VEP
Tug "Harrison"	Owen Sound, Ont.	J. Harrison & Sons	"	VFY
Car Ferry "Ontario No. 2"	Montreal, P.Q	Ont. Car Ferry Co.	Owners	VER
SS. Imperoyal	Sarnia, Ont.	Imperial Oil Co.	M. W. T. Co	VGM
" Armonia	Montreal, P.Q	R. Lawrence Smith	"	VES
" Turret Crown	Newcastle, G.B.	Coastwise SS. & Barge Co.	Owners	ZH

GOVERNMENT STEAMERS EQUIPPED WITH RADIOTELEGRAPH INSTALLATIONS.
OPERATED by the Department of the Naval Service.

Name.	Range.	Call Signal.
H.M.C.S. *Niobe*	400 miles	VDA
" *Rainbow*	250 "	VDB
C. G. S. *Canada*	150 "	VDC
" *Acadia*	200 "	VDT
" *Malaspina*	200 "	VDU
" *Galiano*	200 "	VDV

OPERATED by the Department of Marine and Fisheries.

Name.	Range.	Call Signal.
C. G. S. *Stanley*	150 miles.	VDE
" *Lady Laurier*	150 "	VDF
" *Aberdeen*	100 "	VDG
" *Druid*	100 "	VDH
" *Montcalm*	150 "	VDJ
" *Lady Grey*	100 "	VDL
" *Quadra*	100 "	VDM
" *Estevan*	200 "	VDN
" *Dollard*	150 "	VDO
" *Newington*	100 "	VDP
" *Lurcher Lightship*	100 "	VDR
" *Simcoe*	100 "	VDS
" *Aranmore*	200 "	VDQ
" *Prince Edward Island*	100 "	VBY

Operated by the Department of Railways and Canals.

Name.	Range.	Call Signal.
C. G. S. *Durley Chine*	200 miles.	VDQ
" *Sheba*	200 "	VDZ

Operated by the Post Office Department.

Name.	Range.	Call Signal.
C. G. S. *Lady Evelyn*	100 miles.	VDX

Operated by the Customs Department.

Name.	Range.	Call Signal.
C. G. S. *Margaret*	200 miles.	VDW

Operation of the Coast Station Services.

The following stations on the East Coast previously operated by the Marconi Wireless Telegraph Company of Canada were taken over from that company, and are now operated by the Department of the Naval Service:—

Camperdown, N.S., on May 1, 1915.
North Sydney, N.S., on August 1, 1915.
Point Riche, Newfoundland, September 1, 1915.
Sable Island, N.S., January 1, 1916.

The amount of business handled by the East Coast system shows a decrease from last year's business, amounting to 14,651 messages, containing 332,492 words.

The Great Lakes system (operated by the Marconi Wireless Telegraph Company of Canada, Limited, under contract) shows a decrease of 2,168 messages containing 67,139 words.

The West Coast system (operated directly by this Department) shows a decrease of 3,338 messages containing 429,131 words.

The LePas and Port Nelson stations (operated for the Department of Railways and Canals by this Department) handled 7,617 messages containing 570,281 words, an increase of 2,358 messages containing 244,320 words.

Table I shows a comparative statement of the business handled by the different systems during the last six years.

TABLE No. 1.—Comparative Statement of Business handled by the Radiotelegraph Systems during the last Six Years.

Service.	1910-11		1911-12.		1912-13		1913-14		1914-15		1915-16		Comparison with 1914-15		
	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words	Messages.	Words.	Messages.	Words.	Increase or Decrease.	Messages.	Words
East Coast	71,594	1,179,434	119,049	1,824,450	153,843	2,704,411	145,605	2,443,145	59,846	1,196,512	45,195	864,020	Decrease.	14,651	332,492
Great Lakes	Nil.	.....	1,043	17,095	2,750	52,422	9,601	219,786	15,785	326,505	13,617	259,366	Decrease.	2,168	67,139
West Coast	48,074	647,461	76,158	997,900	115,494	1,518,926	157,354	2,206,331	98,386	1,532,526	95,048	1,103,395	Decrease.	3,338	429,131
Hudson Bay	.....	.....	.....	.....	.....	.....	.....	.....	5,259	325,961	7,617	570,281	Increase	2,358	244,320
Totals	119,668	1,826,895	196,250	2,839,445	272,087	4,275,759	312,560	4,869,262	179,276	3,381,504	161,477	2,797,062	Net Decrease.	17,799	584,442

REVENUE.

The total revenue collected during the year amounted to $8,494.99 against $11,738.35 in 1914-15. The West Coast service shows a decrease of $3,934.94, the Great Lakes a decrease of $7.76, and the East Coast an increase of $699.34.

TABLE No. 2.—Comparative Statement of Revenue received by the Coast Stations Services during the past Seven Years.

	1909-10.	1910-11.	1911-12.	1912-13.	1913-14.	1914-15.	1915-16.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
East Coast	Nil	Nil.	229 57	475 00	318 42	322 99	1,022 33
Great Lakes	Nil.	Nil.	Nil.	17 08	27 55	85 92	78 16
West Coast	Nil.	3,108 63	4,484 77	9,928 40	15,992 70	11,329 44	7,394 50
Totals	Nil.	3,108 63	4,714 34	10,420 48	16,338 67	11,738 35	8,494 99

TABLE No. 3.—Detailed Statement of Business handled by the Ten Stations on the Pacific Coast owned and operated directly by this Department.

Name of Station.	Private Business to and from Ships.		Private Business between Stations.		Business to and from Government Ships.		Government business between Stations.		Service Messages.		Retransmitted Messages.		Cost of Maintenance.	Revenue.
	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words		
													$ cts.	$ cts.
Gonzales Hill (Victoria).	1,259	21,408	6,145	90,044	772	26,804	7,977	116,194	17,313	161,668	350	6,121	4,115 64	1,810 01
Pachena Point	87	1,317	21	289	146	4,462	426	1,379	1,902	15,570	181	2,554	3,580 37	43 25
Estevan Point	1,380	17,547	21	520	413	12,669	407	1,856	3,254	27,903	11,942	142,039	4,662 33	1,508 89
Dead Tree Point	4	40	1,284	30,514	4	193	4	86	2,029	17,506			2,265 59	413 17
Ikeda Head	13	131	191	2,537	15	452	14	207	1,599	12,613	162	1,916	2,078 61	86 72
Triangle Island	1,121	16,678	113	2,604	94	2,567	785	5,441	4,672	40,978	8,756	94,668	5,084 92	923 41
Point Grey	254	3,856	718	11,065	62	1,467	487	2,536	2,820	21,334	678	2,400	3,594 53	340 14
Digby Island (Pr. Rupert)	912	12,066	3,379	57,147	213	9,594	1,408	10,414	2,672	23,751	4	37	4,331 74	1,429 95
Cape Lazo	616	9,021	63	845	148	6,934	385	837	2,456	19,747	160	2,811	3,381 30	347 85
Alert Bay	236	3,500	492	7,163	54	2,533	43	783	1,929	14,009	3	70	3,407 16	491 11
District office at Victoria													5,847 91	
General Account (including charter of steamers) Esquimalt Workshop, etc.													4,697 97	
Totals	5,882	85,564	12,427	202,728	1,921	67,675	11,936	139,733	40,646	355,079	22,236	252,616	47,048 07	7,394 50

Total number of messages handled	95,048
Total number of words handled	1,103,395
Total cost of maintenance of stations (including office, workshop, etc.)	$ 47,048 07
Total revenue	7,394 50

TABLE No. 4.—Detailed Statement of Business handled by the Eight Stations on the Great Lakes, owned by the Department of the Naval Service, and operated by the Marconi Wireless Telegraph Company of Canada, Limited.

Name of Station.	Private Business to and from Ships.		Private Business between Stations.		Business to and from Government Ships.		Government business between Stations.		Service Messages.		Retransmitted Messages.		Cost of Maintenance.	Government percentage of Revenue.
	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	$ cts.	$ cts.
Port Arthur	863	13,261	12	203	220	3,926	1	15	327	3,404	101	1,889	3,500 00	12 74
Sault Ste. Marie	1,289	20,503	8	86	402	10,506	7	105	257	7,800	650	12,643	3,500 00	11 02
Tobermory	228	4,154	76	1,111	222	6,399	2	45	666	5,770	775	18,050	3,500 00	3 14
Midland	447	9,606	32	425	222	6,010			246	3,980	231	4,968	3,500 00	9 19
Point Edward	440	8,096	51	1,049	133	4,597	1	20	470	6,814	1,173	28,551	3,520 65	17 24
Port Burwell	348	3,531	20	396	97	2,260	3	177	127	2,183	17	512	3,641 30	6 07
Toronto	614	9,931	21	267	80	1,769			2,646	51,463	66	1,526	3,500 00	16 64
Kingston	26	1,365											3,522 57	2 12
Total	4,255	70,447	220	3,537	1,376	35,467	14	362	4,739	8,144	3,013	68,139	28,184 52	78 16

Total number of messages handled	13,617
Total number of words handled	259,366
Total cost of maintenance	$ 28,184 52
Total revenue	78 16

TABLE No. 5.—Detailed Statement of Business handled by the Twenty Stations in the Gulf and River St. Lawrence and East Coast, owned by this Department and operated by the Marconi Wireless Telegraph Company of Canada, Limited, under contract.

Name of Station.	Private Business to and from Ships.		Private Business between Stations.		Business to and from Government Ships.		Government business between Stations.		Service Messages.		Retransmitted Messages.		Cost of Maintenance.	Government percentage of Revenue.
	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words		
													$ cts.	$ cts.
Cape Sable							59	833			156	3,718	1,010 46	
Partridge Island (St. John N.B.)	430	7,070			593	14,124	44	954	18	354	24	728	3,500 00	
Cape Race	5,002	91,441	10	183	1,186	23,141	4	70	520	8,562	11	272	3,500 00	
Grindstone Island	39	762	2,039	45,479	147	2,666	161	2,148	264	4,381	911	14,590	1,200 00	574 57
Cape Bear	7	113	59	1,825	554	12,137	23	251	185	3,029	1,849	60,044	2,500 00	
Point Riche	26	815	10	148	167	3,153	300	2,780	68	738	207	2,513	3,837 48	
Point Amour	1	8	382	6,138	55	933	724	31,994	199	4,219	1,411	20,314	3,500 00	
Belle Isle*			37	650	21	315	911	4,853	278	6,473	4,303	60,969	4,500 91	
Cape Ray	318	4,475	278	4,098	588	10,903	75	1,340	387	6,464	485	9,009	3,515 50	
Harrington													2,761 34	
Heath Point	22	563	111	1,861	117	2,388	233	2,241	299	7,807	4,938	86,626	3,500 00	
Fame Point	317	6,445	693	13,911	508	11,601	372	6,517	851	15,970	47	1,117	3,500 00	
Clarke City													3,756 50	
Father Point	339	5,388	1	25	264	6,763	2	18	33	541	15	291	3,502 00	
Grosse Isle			19	308	316	4,469	277	3,792	6	160	49	1,309	2,901 50	
Quebec	340	5,595			1,524	10,572	461	13,127	158	3,502	72	1,586	2,881 50	
Three Rivers	35	695			206	5,086			28	294	434	10,270	3,500 00	
Montreal	253	4,429			19	365			154	2,819	7	148	3,756 50	
Sable Island	3	135	13	286	49	871	505	4,560	258	3,564	192	3,725	3,319 69	33 88
Camperdown (Halifax)	518	10,397	21	414	1,171	30,914	705	7,725	211	3,815			4,692 98	347 28
Totals	7,650	138,331	3,673	75,326	7,485	140,401	4,856	83,203	3,917	72,692	15,107	277,229	65,136 36	955 73

Total number of messages handled	42,688
Total number of words handled	787,182
Total cost of maintenance	$ 65,136 36
Total Revenue	955 73

*Includes returns from 1st April, 1915, to 30th November, 1915, only.

TABLE No. 6.—Detailed Statement of Business handled by the Two Stations on the East Coast owned and operated by the Marconi Wireless Telegraph Company of Canada, Limited, under contract with the Department of the Naval Service.

Name of Station.	Private Business to and from Ships.		Private Business between Stations.		Business to and from Government Ships.		Government business between Stations.		Service Messages.		Retransmitted Messages.		Cost of Maintenance.	Revenue.
	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.		
													$ cts.	$ cts.
North Sydney	83	1,224			288	4,370	144	1,951	65	816	14	292	1,153 56	66 60
Pictou	65	917	773	39,668	554	12,160	78	1,270	350	12,220	93	1,950	1,850 00	
Total	148	2,141	773	39,668	842	16,530	222	3,221	415	13,036	107	2,242	3,003 56	66 60

Total number of messages handled	2,507
Total number of words handled	76,838
Total cost of maintenance	$ 3,003 56
Total Revenue	66 60

TABLE No. 7.—Detailed Statement of Business handled by LePas and Port Nelson Radiotelegraph Stations owned by the Department of Railways and Canals.

Name of Station.	Private Business to and from Ships.		Private Business between Stations.		Business to and from Government Ships.		Government business between Stations.		Service Messages.		Retransmitted Messages.	
	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words.	Messages.	Words	Messages.	Words
LePas			954	16,255			2,356	254,855	441	7,704		
Port Nelson	18	433	953	16,177	96	12,214	2,356	254,855	442	7,710	1	78
Totals	18	433	1,907	32,432	96	12,214	4,712	509,710	883	15,414	1	78

Total number of messages handled..... 7,617
Total number of words handled..... 570,281

The cost of maintenance of these stations is borne by the Department of Railways and Canals and all revenue accrued to that Department.

EXAMINATION FOR CERTIFICATES OF PROFICIENCY IN RADIOTELEGRAPHY.

A total of 107 operators were examined during the year, including 42 re-examinations; 52 candidates were successful and 55 failed.

The following list shows the names of the successful candidates for certificate of proficiency in radiotelegraphy:—

Number of Certificate.	Date of Certificate.	Name.	Grade of Certificate.	Where Examination held.
90	April, 21st 1915.	Taylor Fred	1st Class	Toronto, Ont.
91	" 16th 1915.	Lister, W. K	1st Class Ship	Victoria, B.C.
92	" 16th 1915.	Holmes, J. J	1st "	Victoria, B.C.
93	" 21st 1915.	Wilkie, A. H	1st "	Toronto, Ont.
94	" 21st 1915.	Lindsay, C. C	1st "	Toronto, Ont.
95	" 21st 1915.	Laurie, W. L	1st "	Toronto, Ont.
96	" 21st 1915.	Paterson, F. G	1st "	Toronto, Ont.
97	" 21st 1915.	Galbraith, R. A. H	1st "	Toronto, Ont.
98	" 21st 1915.	Russell, A. H. K	1st "	Toronto, Ont.
99	" 30th 1915.	McKinnon, A	1st "	Ottawa.
100	" 30th 1915.	Barnes, W. S	2nd "	Ottawa.
101	" 26th 1915.	McIntyre, C. M	1st "	Victoria, B.C.
102	May 8th 1915.	Anderson, J. L	1st "	Victoria, B.C.
103	" 12th 1915.	Lovlee, R. P	1st "	Victoria, B.C.
104	June.. 7th 1915.	Argyle, J. V	1st "	Victoria, B.C.
105	July 6th 1915.	DesLauriers, H. E	1st "	Ottawa.
106	" 19th 1915.	Barnsley, Jack	1st "	Victoria, B.C.
107	" 19th 1915.	Olson, J. E. H	1st "	Victoria, B.C.
108	" 10th 1915.	Crawford, J. A	1st "	Victoria, B.C.
109	" 19th 1915.	Calverley, W	1st "	Victoria, B.C.
110	Aug. 30th 1915.	Muir, C. A	1st "	Ottawa.
111	July 26th 1915.	Sheepwash, W. J	1st "	Victoria, B.C.
112	Sept. 7th 1915.	Hill, A. P	1st "	Victoria, B.C.
113	" 7th 1915.	Adams, William	1st "	Victoria, B.C.
114	Oct. 4th 1915.	Campbell, R. A	1st Class Coast and Ship	Halifax, N.S.
115	Nov. 15th1915.	Ward, W. E	1st Class Ship	St. John, N.B.
116	" 17th 1915	Sullivan, W. J	1st "	St. John, N.B.
117	Dec. 1st 1915.	Armstrong, W. L	1st "	Victoria, B.C.
118	" 1st 1915.	Unwin, A	1st "	Victoria, B.C.
119	" 13th 1915.	Russell, R. V. H	1st "	Halifax, N.S.
120	" 13th 1915.	McDougall, E. W	1st "	Halifax, N.S.
121	" 13th 1915.	McAdam, W. J	1st "	Halifax, N.S.
122	" 13th 1915.	Hassell, W. G	1st "	Halifax, N.S.
123	" 16th 1915.	Cooper, E. W. A	1st "	Victoria, B.C.
124	" 22nd 1915.	Parkin, W. L	1st "	Victoria, B.C.
125	Jan. 12th 1916.	Gagnon, C. H	1st "	Victoria, B.C.
126	" 20th 1916.	Burgess, W	1st "	Halifax, N.S.
127	" 13th 1916.	Ward, V. H	1st "	Halifax, N.S.
128	" 13th 1916.	Rushbrook, S. H	1st Class Coast and Ship	Halifax, N.S.
129	" 20th 1916.	Gale, G	1st Class Ship	Halifax, N.S.
130	" 13th 1916.	Hillyer, L. A	1st "	Halifax, N.S.
131	" 25th 1916.	Brannen, H. H	1st "	Halifax, N.S.
132	" 19th 1916.	Parent, J. G	1st "	Halifax, N.S.
133	" 18th 1916.	Brown, W. A	1st Class Coast and Ship	Halifax, N.S.
134	Feb. 24th 1916.	Garner, E	1st Class Ship	Halifax, N.S.
135	" 17th 1916.	Bragg, J. F	1st "	Halifax, N.S.
136	" 25th 1916.	Theriault, A. J	1st Class Coast and Ship	Ottawa.
137	" 23rd 1916.	Graves, E. L	1st Class Ship	Victoria, B.C.
138	March 6th 1916.	Caesar, T. P	1st " "	Halifax, N.S.
139	" 6th 1916.	Foote, G. C	1st " "	Victoria, B.C.
140	" 22nd 1916.	Welsman, T. S	1st " "	Toronto, Ont
141	" 22nd 1916.	Duncan, W. C. C	1st Class Coast and Ship	Toronto, Ont.

The following holders of certificates of proficiency in radiotelegraphy passed a successful examination in the operation of other equipments and have had their original certificates amended accordingly.

Certificate Number.	Name.	Additional Equipment.
114	Campbell, R. A	1·7 K.W. and 0·5 K.W. Ship and 2 K.W. Coast Stations.
69	Downer, J. H	1·5 K.W. Ship Station.
68	Fenwick, J. R	1·5 K.W. Ship Station.
119	Russell, R. V. H	1·7 K.W. Ship Station.

ASSISTANCE RENDERED TO SHIPS DURING THE YEAR BY THE GOVERNMENT RADIOTELEGRAPH SERVICE.

West Coast.

SS. *Princess Maquinna.*—On the 11th July, 1915, the ss. *Princess Maquinna* stranded opposite the North Pacific cannery in the Skeena river, but refloated at full tide at 11.45 p.m. Messages were exchanged during the time the vessel was ashore between the captain and the agents at Prince Rupert and Victoria, via the Digby Island station.

SS.*Mariposa.*—On the 8th October, 1915, the ss. *Mariposa* was wrecked on Pointers island at 5 a.m. Communication with the *Mariposa* was made by the Triangle Island station through the ss. *Despatch.* At 8 a.m. the Despatch reported that she had reached the wreck at 7.43 a.m. and launched boats at 7.45 a.m. and that they were then picking up all the passengers from the beach. At this time the *Mariposa* had a bad list, the forward hold being full of water and all fires out. At 9.45 a.m. the *Despatch* had all the *Mariposa's* passengers aboard and sailed for Ketchikan. Constant wireless communication was maintained throughout by the Triangle Island station.

SS. City of Seattle.—On the 12th November, 1915, a message was received from the SS. *City of Seattle* at 5.45 a.m. advising that she would arrive at Prince Rupert at 9 a.m. An answer was sent to this message by the Digby Island station to which no reply was received; fifteen minutes later the *City of Seattle* ran ashore at Evening point, Granville channel. The Digby Island station called the boat repeatedly during the morning, but no reply was received from her.

SS. Princess Maquinna.—On the 1st February, 1916, the *SS. Princess Maquinna,* southbound from Prince Rupert, struck on Maud island, Discovery passage, at 1. a.m. The commander made all speed to Menzie's bay, where the vessel was beached. The Cape Lazo station was in constant communication with the SS.*Princess Maquinna,* and messages were exchanged between the captain of the vessel and her owners at Victoria without interruption or delay. The wrecking steamer *Salvor* was despatched to the assistance of the *Princess Maquinna,* but the latter vessel eventually refloated and proceeded to Victoria under her own steam.

SS. Camosun.—On the 7th March, 1916, the SS. *Camosun* advised the Digby Island station at 5.15 a.m. that she was ashore 2 miles north of Lima point, Digby island. The *Camosun* had left Prince Rupert the previous night at 10 o'clock en

route for Massett, and was returning for shelter when she went ashore in a blinding snowstorm. The local agent of the Union Steamship Company was immediately advised of the accident, and by 6 a.m. both the SS. *Prince John* and SS. *Princess Sophia* were ready to render any assistance required. The *Camosun's* passengers were taken off by a tug and the SS. *Salvor* was ordered to proceed to the scene of the accident in order to pull the *Camosun* off.

East Coast.

SS. *A. W. Perry.*—On the 8th June, 1915, the SS. *A. W. Perry* went on the rocks outside Halifax harbour during very foggy weather. The steamer sent out signals of distress which were immediately answered by the Camperdown station, and the C.G.S. *Premier*. The whole of the passengers and crew were saved, about sixty persons in all.

Unsuccessful attempts were made to refloat the vessel.

Great Lakes.

The radiotelegraph stations on the Great Lakes were not called upon to render any assistance to distressed vessels during the year.

NEW CONSTRUCTION, ADDITIONS AND ALTERATIONS.

East Coast.

Point Riche.—The transmitting range of the Point Riche station was improved by the installation of new apparatus, at a cost of $409.94.

North Sydney.—The power of the North Sydney station has been increased by the installation of new transmitting apparatus of 2 k.w. power. The set operates from the local power supply, and a musical spark is obtained by means of a non-synchronous disc discharger. The total cost of the installation amounted to $906.79.

Great Lakes.

No construction was undertaken on the Great Lakes during the year.

West Coast.

Alert Bay.—The masts and hoist engines were thoroughly overhauled. The 8-horsepower engine was fitted with high-tension ignition system and both engines fitted with the central oiling system.

Cape Lazo.—A new aerial was erected at this station. The second engine was fitted with high-tension ignition system and central oiling system.

Dead-Tree Point.—Masts and station thoroughly overhauled. A new disc was installed and transmitting gear rearranged in the engine room.

Digby Island.—Masts, hoist engine, and station overhauled. A further ground connection was installed and connected up the existing ground system. A new receiver was put in, and both engines fitted with the central oiling system.

Estevan.—The 1-k.w. set has been refitted and a new receiver supplied. Both engines have been equipped with high-tension ignition system and central oiling system.

Gonzales Hill.—A new tranformer was installed increasing the power at the station from 3 to 5 k.w. Station was overhauled generally and a new receiver supplied.

Ikeda.—Masts, tramway, hoist, and station generally thoroughly overhauled. Both generators were fitted with synchronous discs, and the transmitting gear rearranged.

Pachena.—The tree mast was cleaned down and fitted with stays, and a topmast and yard erected. The standard mast was thoroughly overhauled. A synchronous disc was fitted to the 2-k.w. set. Both engines have been equipped with high tension ignition system and central oiling systems.

Triangle Island.—Masts and station were thoroughly overhauled. Both generators have been fitted with synchronous discs and the transmitting gear re-arranged and a new receiver installed. The two engines have been fitted with the central oiling system.

HUDSON BAY AND STRAIT.

The schooner *Burleigh* was outfitted and took a load of cement and lumber and a construction gang of twenty men to start work on the new radiotelegraph station on Mansel island. The schooner arrived at the island on the 19th of August and left again on the 18th September, 1915. The eight mast anchors and building foundations were installed (approximately 270 yards of concrete) and construction shacks were erected to accommodate a gang of fifty men.

Everything is now in readiness to proceed with the erection of the building and masts. It is estimated that the installation will take sixty working days to complete, provided reasonable weather is encountered when erecting the two 300-foot towers. When completed, the Mansel Island station will communicate with the outside world via the station at Port Nelson, Man. The latter station is owned by the Department of Railways and Canals, and communicates with a similar station located at Le Pas, Man., at which point connection is made with the Great North Western Telegraph system. Both the Port Nelson and Le Pas stations are operated by the Department of the Naval Service on behalf of the Department of Railways and Canals.

CRUISE OF THE SCHOONER "BURLEIGH."

Outward voyage.—The departmental three-masted schooner *Burleigh,* 149 tons, equipped with 40-horsepower gasolene auxiliary, left Halifax on the 20th July, 1915, for Mansel island (at the western entrance to the Hudson strait), taking a gang of twenty-four men and material to commence work on the radiotelegraph station which will be established on the above island.

The schooner arrived off cape Chidley (the eastern entrance to Hudson strait) sixteen days later (5th August), and ran into heavy ice; no progress was made for three days owing to ice and strong currents. On the 8th August the ice eased up, and she continued through the strait. Loose ice was prevalent across the mouth of Ungava bay, but not sufficient to seriously delay progress. No ice was encountered after the vessel was half-way through the strait, and she finally arrived at Eric cove (at the western entrance to the strait) on the 17th August.

It will be noted that the vessel took ten days to get through the strait. This, however, was more due to prevailing head winds than to ice; the time lost on account of the latter is estimated at three to four days.

The auxiliary power on the *Burleigh* is inadequate, the same not being powerful enough to drive her against even a moderate head wind.

Mansel Island.—The *Burleigh* arrived at Mansel island on the 18th of August, and was moored in the cove at the north end of the island. The party remained there until the 15th September. During this period snow squalls were encountered on the 24th and 29th of August, and 13th and 17th of September, respectively, but snow did not fall in any quantity; the temperature varied between 32° and 35° F.,

rising at times as high as 40°. The night temperature was much the same as the day. There were very few calm days, the usual weather being strong breeze to moderate gale, and for three days there was one heavy gale.

Return Voyage.—On the return voyage the *Burleigh* left Mansel island on the evening of the 18th September, cleared cape Chidley early on the morning of the 24th (5½ days), arriving at Halifax on the 5th October.

During the return voyage through the strait no ice was encountered or sighted, with the exception of one large iceberg in Ugava bay, and very little snow. The greater part of the mainland was, however, covered with snow.

OPERATORS.

In view of the importance of the work in which the government wireless operators are engaged, the confidential nature of the messages passing through their hands, and the secret instructions with which they must be entrusted, it was considered advisable to enlist in the Royal Naval Canadian Volunteer Reserve, all the wireless operators in the employ of the Department of the Naval Service.

A rating as "wireless operator" has therefore been instituted in the Royal Naval Canadian Volunteer Reserve, and authorized by Order in Council P.C. 162, dated the 29th January, 1916. The following regulations for the government of the rating have been established:—

Wireless Operators.

Regulations for the institution and government of the rank of wireless operator R.N.C.V.R., authorized by Order in Council P.C. 162, dated January 29, 1916.

Wireless Operators:

(1) A rank in the R.N.C.V.R. to be known as "wireless operator" is hereby established.

Period of Enlistment:

(2) Wireless operators will be required to enlist in the R.N.C.V.R. for a period not exceeding the duration of the war.

Grades:

(3) The following grades of wireless operators are established:—Chief W/T operator, First class W/T operator, Second class W/T operator, Third class W/T operator. Fourth class W/T operator, learner.

Rank:

(4) Chief W/T operators will rank as non-executive chief warrant officers.
Remaining grades of W/T operators will rank as non-executive warrant officers.
W/T operators will take precedence similar to corresponding rank of non-executive warrant officer in the Royal Canadian Navy, but junior to those ranks.

Rates of Pay:

(5) Rates of pay for W/T operators will be as follows:—

	Per Month.
Chief W/T operator	$ 62 50
First class W/T operator	55 00
Second class W/T operator	50 00
Third class W/T operator	45 00
Fourth class W/T operator	40 00
Learner	20 00

Special Allowances:

(6) W/T operators whilst acting as "officers in charge" will receive special allowance as follows:—

	Per Month.
First class station	$ 15 00
Second class station	10 00
Third class station	5 00
Ship station	5 00

(7) The Minister is also authorized to establish special additional allowance in the case of operators attached to specially isolated stations, such as those of the Hudson Bay division, etc.
Lodging, Provisions, Fuel and Light Allowance:

(8) When lodging, provisions, fuel and light are not supplied by the Department, the following allowances will be made:

East Coast.

	Per Month.
Provisions	$ 20 00
Lodging, fuel and light	7 50
Consolidated	$ 27 50

West Coast.

	Per Month.
Provisions	$ 22 50
Lodging, fuel, and light	8 00
Consolidated	$ 30 50

Travelling Expenses:

(9) W/T operators when travelling will receive sustenance allowance as follows:—

	24 hours.	9 hours.	Between 5 and 9 hours.
East coast	$2 50	$1 25	$0 75
West coast	2 75	1 50	0 85

Uniforms:

(10) Free uniform and kit will be granted to every W/T operator on joining, as follows:—2 monkey jackets, 2 waistcoats, 2 pairs trousers, 1 cap, 2 cap covers, 1 overcoat, 1 suit canvas overalls.

Upkeep of Uniforms:

(11) An annual gratuity of $37.50 will be allowed to each W/T operator for upkeep of kit.

Badges:

(12) W/T operators' uniforms will bear the following distinction badges, according to class:

Chief W/T operator	Wings of Mercury, 1 R.N.C.V.R. stripe without curl below.
First operator	Wings of Mercury, 3 stars, below.
Second operator	Wings of Mercury, 2 stars, below.
Third operator	Wings of Mercury, 1 star below.
Fourth operator	Wings of Mercury.
Learner	Wings of Mercury.

The above to be gold badges placed on the sleeve, the Wings of Mercury to be half-way between the elbow and the end of the sleeve; the cap badge to be the same as non-executive warrant officer.

No Separation Allowance:

(13) No separation allowance will be made in the case of W/T operators.

Other Allowances:

(14) No allowances, other than those specifically provided for in this order, will be allowed.

TRANSPORTS.

Under an arrangement with the Admiralty, the department has equipped with radiotelegraph apparatus all munition transports plying to Canada, and is supplying operators and supervising the operation of the stations on their behalf.

PERSONNEL.

The personnel of the radiotelegraph service in the Dominion is as follows:—

	Government.				Commercial.			
	Head-quarters.	Coast Stations.	Land Stations.	Ship Stations.	Head-quarters.	Coast Stations.	Land Stations.	Ship Stations.
Engineers and officers in charge	1	20	2	49	7	31	19	66
Operators		35	5	7		35	17	
Other employees	5	6	1		52	3	32	
Executive officials and inspectors	3	2		1	2	3		
	9	63	8	57	61	72	68	66

Total personnel, 404.

I am pleased to report that the staff directly in the employ of this department have taken great interest in their work and have carried out their duties in a satisfactory and efficient manner.

In addition to the work outlined in this report a very considerable amount of a confidential character has been undertaken in connection with the war.

It would be inexpedient to give details of the latter at the present time, although it comprised perhaps the major portion of the branch's activities.

I have the honour to be, sir,

Your obedient servant,

C. P. EDWARDS,

General Superintendent, Government Radiotelegraph Service.

SUPPLEMENT

TO THE

6th ANNUAL REPORT OF THE DEPARTMENT OF NAVAL SERVICE, FISHERIES BRANCH

CONTRIBUTIONS

TO

CANADIAN BIOLOGY

BEING STUDIES FROM THE

BIOLOGICAL STATIONS OF CANADA

1915-1916

PRINTED BY ORDER OF PARLIAMENT.

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1917

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THE BIOLOGICAL BOARD OF CANADA

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PREFACE.

BY PROFESSOR EDWARD E. PRINCE, LLD., D.SC., F.R.S.C., etc., DOMINION COMMISSIONER OF FISHERIES, CHAIRMAN OF THE BIOLOGICAL BOARD OF CANADA; MEMBER OF THE BRITISH SCIENCE GUILD, LONDON; VICE-PRESIDENT INTERNATIONAL FISHERIES CONGRESS, WASHINGTON, D.C., 1907; AND CHAIRMAN OF INTERNATIONAL RELATIONS, AMERICAN FISHERIES SOCIETY.

The series of nine biological papers, included in the present publication, comprises a selection of the researches completed by various members of the scientific staff, last season, and includes some work done in previous seasons at the two Canadian Biological Stations, at St. Andrews, New Brunswick, and at Departure Bay, British Columbia.

Several very important investigations might have been included, but are not really complete at this date; two bearing directly upon the utilization of certain fish-products for food; but they will be published in the next volume of "Contributions." The question of a serial publication, or of the issue of separate papers as they reach completion, has occupied the attention of the Biological Board, especially in view of the fact that some researches can be completed earlier for publication than others, and yet are held back in order to appear in the same volume with papers which for various reasons cannot be hastened. About twenty trained scientific workers from eight different Universities have during the past season attended one or other of the Stations, and all engaged in marine and fishery studies of special interest, and in most cases of direct value practically and scientifically.

Purely scientific problems, while not neglected, have not formed a prominent feature in the biological investigations at the stations under the Board, and on many occasions there has been official recognition of the value to the Government of the researches undertaken. This appreciation of the practical bearing on the great fishing industries of Canada, of their work, has been a great satisfaction to the staff. Most of them carry on their work without recompense from the Government, and in no case has adequate recompense been possible. The main reward has been the satisfaction which original discovery in Science affords, the satisfaction of adding to man's knowledge of Nature and her resources, and of solving the pressing problems which the great industries on our seas and inland waters offer for solution to trained scientific experts.

During the year 1915 Dr. Johan Hjort, Director of Fisheries, Norway, continued the comprehensive survey of the waters of the Gulf of St. Lawrence and the Maritime Provinces shores which he had commenced the year before. Such a fishery survey, having special reference to the herring, cod, etc., had been considered by the Biological Board in 1909, and the Board had decided to enlist, if possible, the skilled aid of Dr. Hjort, or some Norse expert to be selected by him, and, as Chairman of the Board, I wrote to Dr. Hjort on the subject. Professor E. W. McBride, who was then the representative of McGill University on the Board, followed up my communication, and Dr. Hjort replied recommending a qualified junior member of his scientific fishery staff; but, owing to certain conditions involved, the proposal remained in abeyance. Two years later the proposition was revived by the Biological Board, who laid the

matter before the Hon. the Minister because of the fact that the ordinary appropriation available was too limited to allow of a large expenditure upon such a fishery expedition. No final decision was reached until 1914, when the scheme took practical shape and Dr. Hjort, in the fall of that year, began his researches. During his second season (1915) in Canada he carried out a very elaborate series of investigations, and several members of the Biological staff took part, including Professor Willey, Dr. A. G. Huntsman, Dr. J. W. Mavor, and Commander Anderson and other officers of the Naval Service Department.

A series of voluminous memoirs, most of them fully illustrated, is now in the printer's hands, and the results of this important Atlantic Fishery Expedition will be of permanent interest and value.

As in previous volumes of the Biological Contributions, I give a brief *resumé* of the several papers which follow, for convenience of reference, and to afford a ready means of knowing some of the main points set forth by the authors.

1. The Winter Plankton, St. Andrews, 1914-15.—*(Professor McMurrich.)*

Previous Plankton investigations have been carried on in summer; but in view of the importance, as a source of nutriment for marine fishes, of the minute organisms floating in the sea, it appeared desirable to study these organisms in winter, as well as during the warmer months of the year, and Mr. Arthur Calder, a permanent officer of the St. Andrews Biological Station, made collections from September, 1914, to May, 1915. About twenty stations were visited regularly and suitable plankton nets used at the surface and at a depth of three fathoms. The depth and temperature (of the air and water), and the condition of the tide, were recorded on each occasion. Professor McMurrich points out that the collections at three fathoms depth showed greater abundance than near the surface; but the finer net used at the latter level may have influenced the result. The author grades the occurrence of the different species identified by him as "abundant," or "frequent," or "occasional," or "rare," and a study of the synoptical table, at the end of the paper, gives at a glance the comparative results. Among the microscopic plant-forms, the sub-globular *Coscinodiscus* (four species) is most constant, but it increases in abundance as spring comes on. Next, but much less constant, is *Biddulphia*. *Chaetoceras*, four or five species, occurs throughout the winter near the surface; but *Thalassiosira* and *Rhizosolenia* become suddenly most abundant in May and April. *Ceratium* and *Peridinium*, several species, were not frequent.

Curiously enough, some familiar animal forms seemed to be absent in winter, such as the Foraminifera, Radiolarians, and Infusorians, a few of the latter only occurring. Similarly Hydroids, and Echinoderm larvae, were rare in contrast to their frequency in summer. Higher animals, e.g., worms, mollusks, and the like, were rare, one *Sagitta* being taken on January 1st, and a number of Plutei, and Holothurian ova and larvae, in April and May. Minute crustaceans form, as a rule, a most abundant element in the zoo-plankton, and the Copepods or water-fleas appeared during the winter to be most constant, very few of the Cladocera being taken (viz. a species of *Podon* about the middle of October at three fathoms depth; *Temora*, *Harpacticus*, *Zaus*, *etc.*, being abundant or frequent, but Calani, species of which the rarest forms were *Parathalestris Jacksoni*, not before recorded in west Atlantic waters, and a single *Halithalestris*. Larval crabs and allied forms were rare, no lobster fry occurred; but Tunicate larvae were secured early in November and January, and Appendicularians in October. Only a few fish eggs and one small shore fish (pelagic stage) were obtained.

The winter plankton in these waters would not appear to be so abundant or varied as anticipated; but it may be that, by using modified nets and by more extended work, areas of plentitude may be discovered to which the schools of young fish resort for feeding purposes.

2. Diatoms and Lobster Rearing.—*(Professor MacClement.)*

Professor Knight's laborious researches have shown that efforts to rear lobsters through the young stages in hatching ponds have been hampered by several difficulties, one of the most serious being the diatom pest. After hatching, larval lobsters crowd near the lighted surface layers of the water, until after four or five moults they seek shelter at the bottom. While under the influence of sunlight they become loaded with microscopic plants, the diatoms forming a feathery coat as it were, and so incommode the floating larval lobsters that they were observed to sink to the bottom of the boxes used in the experiments at Long Beach, Nova Scotia.

After a description of the structure of diatoms, and of the three or four species chiefly affecting young lobsters, the author dwells upon the two principal methods of combatting the pest, viz., by copper sulphate solution, which proved fatal when only 1½ to 2 parts in three million parts of water were tried; and a second method, i.e., the screening from direct sunlight of the rearing boxes. Under this latter method larval lobsters loaded with diatoms soon lost a great many of them, and they moulted earlier, viz., in nine days, whereas the lobster fry not shaded from sunlight did not moult until the thirteenth day. *Licmophora* was the chief pest, but a list of nineteen species of diatoms occurring in the boxes is given, and the relation of the plankton to the sessile diatom pest is interestingly explained.

3. The Scales of the Spring Salmon.—*(Dr. C. McLean Fraser.)*

After reference to other work on fish scales, as affording information on the growth of fishes, Dr. Fraser states that the rings of growth in the Spring Salmon or Quinnat are much more regular in arrangement than those of the herring scale, and closely resemble the growth in a twig of wood (in cross section); the rings being closer and more compact in winter (the "winter check"), whereas from late in April to late in November the rings are wider, like the looser texture of the summer growth in the twig. Dr. Fraser noticed between March 17th and April 22nd, and between November 27th and January 5th, there were in many specimens evidences of retardation of growth, as Einar Lea had also noticed in the Norwegian herring. Careful tests made by the author did not show any relation between the temperature of the water and the retardation or the acceleration of growth, and the "graphs" given in the paper fully confirm this negative result. Nor does variation in food-supply appear to explain the phenomenon. An exhaustive study of the growth of the fish was made from the time when the fry (1½ inches long), not yet provided with scales, descends to the sea.

At the end of the year the fish are 10 inches long usually and weigh about half a pound. Not all the fry descend the first year; but some remain, and acquire their scaly covering in fresh water. The summer rings are close together, so slow is the growth of the fish in fresh water, and the two types of fish are remarkably contrasted even when both mingle in the same schools in the sea. Thus, the fish which reach the sea from March to April in their first year, may be 20½ inches long and weigh 4 pounds or over; but the delayed fish are only 14 inches and of a weight of a pound. In the third year they are respectively 28½ inches and 14 pounds weight, and 23 inches and 6 pounds weight; while, in the fourth year, they are in length 33 inches and 30 inches, and in weight 22 pounds and 16 pounds respectively. The more rapid growth of the "sea type" indicates that the retention of the fry in ponds is a mistake, and based on lack of accurate knowledge of the peculiarities of the Pacific Quinnat Salmon. Four very graphic plates and two diagrams establish the important conclusions reached by Dr. Fraser.

4. On the Life-History of the Coho.—*(Dr. McLean Fraser.)*

The author points out that the increasing commercial value of the Coho or Silver Salmon (*Oncorhynchus kisutch*) in recent years justifies a thorough investigation of its life-history, rate of growth, etc. The spawning grounds are usually a short distance from the sea, and not at the head waters, as in the case of the Sockeye and the Spring Salmon. The eggs hatch in three months and the young fry wriggle up through the gravel early in April, and work down the rivers as the yolk is absorbed, and early in May many are near the mouth of their natal streams and creeks, but do not appear to migrate into the sea until the following March, or even later. The alevins measure 1½ inches; but when they are about to enter salt water (nearly a year old), they measure 2 to 2¾ inches about; and eight or nine months later are 10 to 12 inches long and of a weight of 12 to 14 ounces. When 2½ years old or thereabout, they may be 3¾ to 16½ pounds in weight, and from 18 to 31 inches long, so great is the variation in growth. They are now mature and make the short ascent to their spawning grounds.

Dr. Fraser proves that the opinion, which has been frequently expressed, that coho live for two or three years in rivers feeding on trout is absurd, and the reverse is much nearer the truth, for trout gorge themselves with coho eggs and devour the fry mercilessly. The Dolly Varden trout (*S. malma*) is the chief culprit. The mature coho feed actively until ready to ascend for spawning purposes; the shrimp-like Schizopods being their main food, but larval crabs, young herring, launce, and capelin, form also part of their diet. Dr. Fraser's investigations correct the conclusions of previous workers as to the migrations and development of the coho, and three points, with which his report concludes, are of the highest interest to practical fish-culturists, viz., that the hatching of coho in fish-culture establishments is most desirable to avoid the wastage due to trout-depredations; and, secondly, that the retention of coho fry in rearing ponds must bring the best results, as almost the whole of the fry hatched naturally remain for a year or more in fresh water before descending to the sea. Lastly, early coho fishing operations are a loss to the fishermen and the canners, as the coho vastly increases in weight during the summer of its third year.

5. Investigation of Oyster Propagation in Richmond Bay, P.E.I., during 1915.—*(Dr. Julius Nelson.)*

The author, who was long prominent as a State Expert in New Jersey, U.S.A., agreed to carry on some special work in 1915 on the Richmond Bay Oyster Beds, P.E.I., and obtained some very remarkable results. These are difficult to epitomise owing to the very detailed nature of the investigation. The decline and extinction of certain areas are due not to the elevation of the beds, geologically, or by annual accumulations of debris, but to other causes. If the coast has been sinking, as seems probable, the intrusion of colder northern water may have lowered the temperature and the salinity may have been affected. Too much stress, says the author, has been probably laid on salinity, for oysters can endure much variation in that respect; but temperature, oxygen, and currents, are of importance.

Ice and snow also are unfavourable. Shallow water is favourable for propagation; but, in winter, results in oyster destruction; hence man can aid by oyster culture, especially by transplanting young oysters from shallow flats to deeper water, before winter comes. The main cause of destruction of beds has been improper fishing. Were private culture general each man would conserve the oysters, and fish them properly.

Dr. Nelson calls attention to the fact that a large spawning oyster produces annually 60,000,000 eggs, and he estimates that an oyster bed readily produces ten to fifteen millions of young for each adult present. In five years a bed should be ten million times larger; yet beds are decreasing and decaying.

Unfavourable causes are noticed, viz.:—(1) Eggs must be fertilized within a quarter of an hour of ejection to undergo normal development; (2) Eggs may be prevented from settling by agitation in the water; (3) Floating enemies such as water-fleas, and the young of other shellfish, devour them; (4) Owing to the sweeping of the tide, twice daily, myriads of oyster fry are lost; (5) Slime, silt, etc., prevent the fixation of the spat to dead shells and other "cultch"; (6) Boring sea-snails, starfish, bottom fishes, etc., devour the oysters, and, lastly, man himself destroys them. Systematic plans of conserving oyster beds are then detailed, and the necessity of oyster leases urged. The methods adopted for testing the special areas examined in Richmond Bay are described, and the numbers of oyster larvae obtained in definite cubic quantities of water. The maximum found was two young oysters to one quart of water in Grand River. This small yield is contrasted with the profusion of oysters on more southerly areas as in New Jersey, where several hundred young oysters per quart of water was very usual. Some oysters shed their eggs towards the end of July, but the date varied in different localities, fry ten days old being got on August 5th, but it continued until September, some oysters becoming fixed spat as late as September 16th or 18th.

To prevent the formation of bacterial slime, a number of shells were coated with coal tar, as a fine catch of spat had fastened on the tarred bottom of a boat the previous season. The result showed only two-fifths as many fixed young as on the uncoated clean oyster shell. The smooth and the rough side were equal in results, and the left valve attracted twice as many as the right valve, though in gaping empty oyster shells, lying naturally on the bottom, the right valve always secures more spat. Further experiments are desirable, especially with cultch coated with a cement composed of equal parts of lime, sand, and cement, as used on European oyster beds. Dr. Nelson's conclusion is that 8,000 acres might be made productive in Richmond Bay, which covers 32,000 acres, and that a million bushels per annum could be produced were rational scientific methods adopted.

6. The Marine Algae of the Passamaquoddy Region, N.B.—*(Mr. A. B. Klugh, M.A.)*

Mr. Klugh covers in his paper the area from St. Stephen, at the head of navigation on the St. Croix River, to Grand Manan, and notes that the algal flora is boreal, but shows a marked "inside" or mainland shore division, and an "outside" division comprising the shores of what are called the West Isles, and due doubtless to the difference in salinity. The "outside" waters have a specific gravity of 1·0235 to 1·0242, and salt content of 3·201 to 3·280, as compared with the "inside" waters where the figures are—specific gravity 1·0226 to 1·0235, and salts 2·99 to 3·202, as Mr. Copeland found. Of the Cyanophyceæ Mr. Klugh names twelve species; the Chlorophyceæ 24 species; the Phaeophyceæ 23 species; and the Rhodophyceæ 26 species.

The features of the shores are shown in views on Plate viii, the gigantic *Laminaria longicruris*, the largest alga in this region, is well shown in a photo-figure, the specimen selected being five feet ten inches long, with a stipe 9 feet long. *Dermocarpa prasina*, and four other species of Cyanophyceæ, are recorded by the author for the first time in Canada. The habitat, and other interesting notes are given.

7. Serially Striped Haddock in New Brunswick.—*(Professor Prince.)*

Specimens of haddock with four to six transverse black stripes are frequently brought to the Biological Station, and the author compares them with other species showing metameric bars, in post-larval or older stages, and he concludes that they are ancestral in significance, and not protective or illustrative of mimicry and the like.

8. Notes on the Phyto-Plankton of the Bay of Fundy and Passamaquoddy Bay.—*(Professor Bailey.)*

Professor Bailey continues his laborious studies of the microscopic plant-life of our Atlantic waters. He determines the species in gatherings made in successive months of the year, December excepted, and adds a list of diatoms secured in tow-nettings made by the *Prince,* the biological vessel belonging to the station at St. Andrews. He points out that non-planktonic species are frequently met with amongst neritic species secured far from shore, and the distinction is often, therefore, ill-defined. The gatherings in various months differ greatly, for while in January under twenty species were determined in the gatherings from St. Andrews to St. John, in August nearly eighty species were found. The *Prince* collections are similarly detailed, and interesting notes added including reference to a species of Thalassiothrix which is probably new to science.

9. The Geological Features of the St. Croix River and Passamaquoddy Bay.—*(Professor Bailey.)*

In response to a suggestion made to Professor Bailey, he has prepared a condensed account of the geology of the site of the St. Andrews station and its environment. The Upper Devonian rocks of red sandstones and conglomerates of the St. Andrews peninsula contrast with the granites of the Maine shore opposite and of Dochet island above the station, and the Silurian strata extending from lake Utopia and St. George to Oak bay, both sides of the entrance and both sides of Waweig inlet. The interesting features, largely Pre-Cambrian probably, of the Western Isles are also indicated in the paper.

THE WINTER PLANKTON IN THE NEIGHBOURHOOD OF ST. ANDREWS, 1914-15.

By Professor J. Playfair McMurrich, M.A., Ph.D., Professor of Anatomy in the University of Toronto.

With the object of determining the general character of the winter plankton in the vicinity of the Biological Station, St. Andrews, N.B., the caretaker of the station, A. B. Calder, was instructed to make collections of the plankton during the winter of 1914-15, and to preserve the material collected in formalin. Collections were consequently made at frequent intervals from the latter part of September, 1914, until the end of May, 1915, and in what follows, the results of a qualitative study of the collections are given. Acknowledgment must be made of the conscientious manner in which Calder fulfilled the task with which he was entrusted, the collections having been made with sufficient frequency to give an excellent idea of the character of the winter plankton, and the material being well preserved. Two collections were taken at each station in the majority of cases, one at the surface and one at a depth of about 6 metres (3 fathoms), and at each station the temperature of both the air and the surface-water was taken, and the condition of the tide noted. The only misfortune that occurred was the loss of the labels of some of the collections, chiefly of those made in the early autumn, so that these collections cannot be included in the table which forms an appendix to this report. Their omission, however, does not modify the qualitative character of the plankton as shown by the remaining collections.

In studying the collections, the volume of the material contained in each one was measured, and since nets of the same mesh were used throughout and the time of the towing was the same, i.e., twenty minutes for each collection, the amounts obtained indicate approximately the relative abundance of the plankton in the different gatherings of the series. Obviously, however, they furnish no indication of the absolute amount of material present in the water of Passamoquoddy bay, since no data were available as to the volume of water filtered through the nets during the towing. So many factors, uncontrollable in the series of collections under consideration, enter into the question of the determination of the absolute plankton volume, that it did not seem worth while to attempt an estimation of the volume of water filtered by the nets. The amounts obtained have, therefore, only a relative interest. One feature is, however, shown very clearly by the figures, namely, that with rare exceptions the collections from the 6-metre level were considerably larger than those from the surface. This may or may not have a bearing in the distribution of the plankton, since the conditions under which the collections at the two levels were made were not quite identical, the surface collections having been made with a net of finer mesh than that used at the 6-metre level. The greater fineness of the surface net may have caused so much diminution of flow through it, that much less water was actually filtered by it than by the 3-fathom net, in which case a less amount of plankton, even though its distribution were uniform at both levels, would be expected in the surface collection. In future series the conditions for the gatherings at the two levels will be made more uniform, and it is hoped that a definite result will be obtained as to this question of distribution.

Samples were taken of each collection and, so far as possible, the various forms observed in each were identified and recorded, an attempt being made to indicate

the relative abundance of each form by estimating the frequency with which it occurred. Four classes of frequency were recognized and termed abundant, frequent, occasional, and rare, the last being employed when only one or two examples of a form were found in a sample, the other terms explaining themselves in a general way on this basis. In the table these terms have, for convenience, been indicated by the numbers 4–1, 4 standing for abundant, 3 for frequent, etc. Seasonal variations in the character of the plankton are revealed in this way, and a few remarks may be made upon these variations and on various forms occurring in the collection so far as they have been certainly identified.

THE PHYTOPLANKTON.

Less attention was given to the phyto- than to the zooplankton, partly on account of the inaccessibility of the literature necessary for the identification of the forms, and partly because the Diatoms which form a major portion of it have already been discussed by Bailey.[1] The form occurring with the greatest constancy is the diatom *Coscinodiscus,* which is absent from but a few of the collections throughout the entire period which they represent. With the onset of spring, however, it becomes somewhat more abundant than in the winter months, behaving in this respect like other members of the phyto-plankton. Four different forms of the genus have been recognized, which, with the aid of Rattray's Monograph[2] and such other literature as was accessible, have been identified as *C. radiatus* Ehr., *C. concinnus* W. Sm., *C. centralis* Rattray, and *C. fasciculatus* O'Me. The first three species have already been recorded by Bailey, and may be distinguished from one another and from *C. fasciculatus* by *C. radiatus* being the smallest, and having distinctly coarser markings and no central rosette or space; by *C. centralis* having a central rosette, but no signs of fasciculation of the markings at the periphery, near which are situated asymmetrically two apiculi; by *C. concinnus* having a central rosette, much finer markings than either of the others, these markings showing indications of fasciculation towards the periphery, and each fasciculating line terminating there in a minute apiculus; and by *C. fasciculatus* having a central space, and the markings arranged in fasciculi, each of about nine radial rows, the central one of which alone reaches the central space, the others terminating at successively greater distances from it.

Next in order of constancy to *Coscinodiscus,* though falling much behind it, was *Biddulphia,* the most frequently occurring species being *B. aurita* Lyngb., although a much larger form with small scattered chloroplasts, probably *B. mobiliensis* Grun, was also observed in several gatherings. From October, until about the end of February, *Biddulphia* was rare or absent from the collections, but throughout March and April it was of frequent occurrence, diminishing again rapidly in May. Its seasonable distribution was, therefore, similar to that of *Coscinodiscus,* except that the latter is more frequently present throughout the winter months, reaching a maximum frequency in March and April.

Examples of *Chaetoceras* occurred at rare intervals throughout the winter, becoming more numerous and more constant in April, and, it may also be noted, occurring most frequently in the surface collections, only having been observed in two occasions in those of the 6-metre level. At least four or five different species were observed, all belonging to Gran's sub-genus *Hyalochaeta.*[3]

[1] L. W. Bailey. Some recent Diatoms, fresh-water and marine, from the vicinity of the Biological Station, St. Andrews, N.B., August 20-30, 1909. Contributions to Canadian Biology, 1906-10. Ottawa, 1912.

L. W. Bailey. The Plankton Diatoms of the Bay of Fundy. Contributions to Canadian Biology, 1911-14. Ottawa, 1915.

[2] J. Rattray. A Revision of the Genus *Coscinodiscus* and some Allied Genera. Proc. Roy. Soc. Edinburgh, xvi, 1899.

[3] H. H. Gran. Protophyta in Norwegian North-Atlantic Expedition, vii, 1897.

The most frequent form was what seemed to be *C. laciniosum* Schütt with a single chromatophore, the foramina slightly constricted at the middle, and the terminal setæ marked by a delicate spiral line most easily seen in dried samples; spores were not observed. Somewhat less frequent was a spirally coiled form which seemed to be *C. curvisetum* Cleve, with a single chromatophore adjacent to the front of each frustule. *C. decipiens* Cleve was still rarer, but readily distinguished from the others by its coarser setæ and the occurrence of four to six chromatophores, and a single example of a form with numerous scattered chromatophores, thus resembling *C. teres* Cleve, and another with two chromatophores adjacent to the ends of the frustule (*C. constrictum* Gran.?) were also observed.

An interesting seasonal distribution was shown by *Thalassiosira Nordenskjöldii* Cleve. Throughout October, November, and the winter months this species did not occur in the collections, but on March 13 it suddenly appeared in considerable quantities. It was again taken on March 25 and 26, though not in any great numbers, but on April 4 it formed by far the greater bulk of the plankton, which condition persisted until the collections ceased at the end of May.

Another genus that showed a distinct maximum of occurrence at the end of March and the beginning of April was *Rhizosolenia,* so far at least as its most frequently occurring species, *R. setigera* Brightwell, was concerned. *R. styliformis* Brightwell was also observed, but only in one collection, and another form, which seems to be very similar to *R. gracillima* Cleve was also observed. This last form was observed on four occasions, October 16 and 20, February 26 and March 2, and on all occasions except the last it was found in collections made at the 6-metre level, while it was absent, or at all events rare, in the surface collections made on the same dates and at the same stations. Whenever found it was in great numbers. The frustules were long, filiform, without any signs of markings except a slight depression close to each extremity, and were filled with small, scattered oval or circular chromatophores. The longest individuals measured as much as 2·2 mm., with a diameter of 0·0075 mm., and the great majority exceeded 1·0 mm. in length. These measurements greatly exceed those given by Cleve[1] in the description of the species, but otherwise the agreement is close. A species of *Schizonema,* and one of *Fragilaria* were also somewhat more abundant in the early spring months, and examples of other genera were occasionally observed, but no attempt was made to determine their exact identity. Of the genera so represented, mention may be made of *Navicula, Rhabdonema, Gomphonema, Bacillaria,* and *Campylodiscus.*

Of occasional occurrence also were certain filamentous algæ, the only one that was identified even as to the genus, being a species of *Cladophora,* which, like many of the diatoms, showed a maximum of occurrence, its greatest frequency and constancy being in the early part of April, and being of only a few days' duration.

DINOFLAGELLATA.

The most frequent representative of this group was the well-known *Ceratium tripos* (O. F. M.) Nitzsch, *C. fusus* (Ehr) Dujard. also occurring, though not quite so frequently, and *C. furca* (Ehr) Dujard. was recognized in two gatherings, but only in very small numbers. Of the genus *Peridinium, P. divergens* var. *reniforme* Ehr. (*P. depressum* Bailey) was found occasionally, and was the only member of the genus recognized. *Dinophysis norvegica* C. and L. was also observed, but only on one occasion. None of the Dinoflagellates occurred in such numbers as be important quantitative constituents of the plankton, *C. tripos* only on one occasion being in sufficient quantity to be regarded as frequent.

[1] P. T. Cleve. On some new and little-known diatoms. K. Svensk. Vet.-Akad. Handl, xviii, No. 5, 1881.

SILICOFLAGELLATA.

Of this group only one form was observed, *Distephanus speculum* (Ehr) Stohr, and this only on three occasions. It was frequent in a gathering from the 6-metre level on March 6, but on the other two occasions it was rare (October 20, 6-metres) or occasional (March 2, surface).

RHIZOPODA.

No Radiolaria were observed. These forms being essentially pelagic, it seems probable that they would only rarely, if ever, be found in waters so remote from the open sea as those in the neighbourhood of St. Andrews. Foraminifera, too, were absent, a single *Rotalia* being the only one observed, and that in a gathering which contained a good deal of sand, indicating that the net at the 6-metre level had come into contact with the bottom.

CILIATA.

In addition to a Vorticellid that was almost invariably found attached to the Copepod *Acartia clausii,* a number of ciliates belonging to the family Tintinnodeæ were observed. The genus *Tintinnopsis* was represented by at least three species, the most frequent of which was *T. campanula* (Ehr) Daday. Examples of a form which is probably to be regarded as a variety of this were found on one occasion, their peculiarity being that they tapered aborally much more rapidly than the typical *campanula,* thus resembling closely the form figured by Brandt[1] in his fig. 8, pl. xxi. A single example was seen of *T. ventricosa* (C. and L.), characterized by its somewhat rotund "house," tapering aborally to a blunt point and with the mouth-opening greatly constricted by a circular prolongation, which, in the preserved example, was horizontal in position. A third form, of which again but a single example was seen, was considerably larger than the others and had an almost cylindrical form, enlarging only very slightly towards the mouth, and being rounded aborally; the length was about twice the breadth. In its general form it resembled closely that described by von Daday[2] as *T. beroidea,* but Brandt does not consider this identical with the form originally so named by Stein. Among the species described by Brandt the greatest similarity of form is shown by *T. sacculus,* but, unfortunately, the notes and drawing made of the St. Andrews form are insufficiently detailed to make identification with this certain.

Of occasional occurrence, and in one gathering (October 20) almost frequent, was a species of *Cyttarocylis,* whose specific identity is also uncertain. It resembles *C. Ehrenbergi* (C. and L.) Fol. very closely in its general form and in the fact that the cavity of the "house" is not continued into the aboral prolongation This latter structure, however, is cylindrical in form, showing no traces of the three flange-like ridges which Brandt regards as characteristic of the species, although these are not noted by other writers. The surface of the "house" presents a very fine reticulation and has a minutely and irregularly corrugated appearance, most pronounced in the aboral prolongation. Near the mouth there is a narrow circular enlargement upon which follows a thin ring, sometimes single, sometimes partly divided into two portions by a fine line, as if it were composed of a spiral membrane with one and a half turns. The free edge of the ring or spiral is practically smooth, and the appearance presented is similar to that described and figured by Jorgensen[3] for his

[1] K. Brandt. Die Tintinnodeen. Ergeb. Plankton Exped., III, L. a., 1907.
[2] E. von Daday. Monographie der Familie der Tintinnodeen. Mitth. Zool. Stat. Neapel, vii, 1887.
[3] E. Jorgensen. Ueber die Tintinnoden der Norwegischen Westküste. Bergens Mus. Aarbog., 1899.

C. Ehrenbergi, var. *subannulata*, except that the turns of the spiral are much fewer. The length of the "house" was 0·26 to 0·34 mm., with a diameter at the mouth of 0·7 to 0·8.

PORIFERA AND COELENTERA.

What were taken to be sponge spicules were observed in a number of gatherings, usually associated with annelid setæ. Their occurrence is sufficiently indicated in the table. Of Coelentera, the empty cups of Campanularian hydroids were occasionnally observed associated with Crustacean exuviæ, and on October 29 and in the last collections that were made (May 29) a few examples of Anthomedusæ were observed, but unfortunately in a condition very unfavourable for certain determination.

ECHINODERMATA.

Throughout the winter, no representatives of this group were taken, but at the end of April and beginning of May a few *Plutei* were obtained which could not be satisfactorily identified. On April 6, a considerable number of ova in various stages of segmentation up to the blastula stage were found. They were somewhat opaque, and inclosed within a thin structureless membrane. They were taken also on April 10, and with them were then associated larvæ which could be recognized as belonging to some species of Holothurian. The general appearance of the ova and younger larvæ make it exceedingly probable that they were younger stages in the development of the same form. The larvæ continued to be taken through April and May, and were a quite characteristic feature of the plankton during these months.

Two Holothurians occur at St. Andrews that may be the producers of these ova, *Cucumaria frondosa* Gunner, and *Lophothuria fabricii* (Dub and Kor). The former is the more common, but the fact that the ova and larvæ have, when alive, the same brilliant scarlet colour that makes *Lophothuria fabricii* so conspicuous, suggests that they may be the product of that species.

ANNELIDA, NEMATODES, ROTIFERS, AND CHAETOGNATHA.

Examples of all these groups were observed, but never in such numbers that they could be regarded as important elements of the plankton.

Setæ of various forms which evidently were from Annelids were found in fair numbers in several gatherings taken after March 1, but of more importance was the occurrence of Annelid larvæ during April and May, never in any great numbers in any gathering, but sometimes reaching the grade of frequency indicated in the table by the term "occasional." It was not possible to identify the form which produced the larvæ, but from their general appearance it seems probable that they represent some Spionid form.

Small Nematodes were occasionally observed in small numbers in the spring gatherings, but no attempt was made to identify them. The same remark applies to the Rotifera, which were much rarer than might have been expected. Of the Chaetognaths the only form identified was *Sagitta elegans* which was taken January 1, the identification of some smaller forms taken October 29 remaining uncertain.

MOLLUSCA.

A few veligers were observed, but so rarely that they have not been included in the table. The peculiar egg-capsule, probably Molluscan, having the shape of a broad-rimmed hat, which Wright described from Canso, occurred at intervals throughout the season, and sometimes in considerable numbers. Most frequently only the brown empty cases were found, though occasionally those containing developing ova were obtained.

CRUSTACEA.

The Crustacea are the most interesting group represented in the zoo-plankton, both on account of the number of species represented, and for the fact that, in the majority of gatherings, they form the greater bulk of the material. It will be convenient to consider the various forms observed under their proper orders

Cladocera.

Representatives of this order were found much less frequently than was expected, occurring in any considerable numbers in only one gathering, i.e., in that taken October 16, from the 6-metre level. All the forms observed in this gathering were representatives of the species *Podon polyphemoides* Leuckart.

Copepoda.

Forms belonging to this group were the most constant constituents of the plankton, being found in every gathering, with one exception, and usually in considerable numbers. It is noteworthy, however, that in the spring months when *Thalassiosira* became a prominent constituent of the plankton, the Copepoda became very much reduced in numbers. At least this was the case so far as the surface water down to the 6-metre level was concerned, the *Thalassiosira* extending to that depth, but it is quite likely that the Copepoda were present in undiminished numbers at levels beyond those occupied by the alga. The diminution of the Copepoda in the surface water coincidently with the appearance of *Thalassiosira* is clearly indicated in the table if one compares the frequency records for *Acartia clausi* and the diatom.

Of the members of the family *Calanidæ,* special interest attaches to *Calanus finmarchicus* (Gunner) Boeck, on account of its forming so important a constituent of the plankton of northern waters. It occurred at intervals throughout the winter, but never in any great quantity, although in several gatherings it was present in sufficient numbers to deserve the term "frequent." It is to be noted, however, that the plankton now under discussion was collected in the immediate vicinity of St. Andrews, and it is quite probable that *C. finmarchicus* may be much more abundant in more open water. Herdman in 1897[1] found it very abundant in the gulf of St. Lawrence and in the Atlantic off the entrance to the straits of Belle Isle, and my colleague, Dr. A. G. Huntsman, obtained it in large numbers in rather deep water off Eastport, Me., and off Grand Manan in September, 1915.

The much larger *C. hyperboreus* Kröyer was observed in only one gathering, and then only as a single individual. The fact of its occurrence is, however, of interest as it has not previously been recorded from Canadian waters.

A third Calanid, *Pseudocalanus elongatus* Boeck, easily recognized by the absence of the fifth pair of legs in the female, occurred in about the same degree of frequency as *C. finmarchicus.*

Of the family Centropagidæ, the genus Eurytemora furnished two representatives, *E. hirundoides* Nordquist and *E. herdmani,* Thompson and Scott. Neither was abundant in any gathering, but both occurred at intervals throughout the season represented by the collection, and were occasionally "frequent." *Temora longicornis* (Müll) Boeck also occurred at intervals in the autumn and winter until the end of January, after which it was not observed. On the last date on which it was found (January 27) it was the most abundant constituent of the plankton.

It is the family Pontellidæ, however, that furnishes the most characteristic feature of the plankton now being discussed, the form concerned being *Acartia*

[1] W. A. Herdman. On the plankton collected continuously during two traverses of the North Atlantic in the summer of 1897. Trans. Liverpool Biol. Soc., xii, 1898.

clausi Giesbr. A glance at the table will show that this species occurred in nearly every gathering throughout the season, and that up to the early part of April it was almost always in abundance. Its reduction in numbers after that date in association with the appearance of *Thalassiosira* has already been commented upon. Another Pontellid observed was the interesting *Tortanus discaudatus* (Thompson and Scott) Giesbr. It was taken in several gatherings made during the autumn and early winter, but after December it was not again noted until the end of May. In connection with this form, it may be noted that Giesbrecht and Schmeil[1] question the correctness of Thompson and Scott's original description of the endopodite of the first pair of legs being three-jointed. There is no doubt, however, that the original description is quite correct, *discaudatus* differing from other members of the genus in this respect.

Of the Cyclopidæ, *Oithona similis* Claus was the only form observed, and that in small numbers in but three gatherings.

The Harpacticidæ have hitherto received but scant consideration in plankton lists, partly, no doubt, to difficulties inherent in their identification. The excellent monograph of the family by Sars[2] does away with some of these difficulties and, with its aid, it has been possible to determine the occurrence in the collections of a number of forms hitherto unrecorded from Canadian waters. The most frequent species was undoubtedly *Harpacticus uniremis* Kröyer, which is readily distinguishable from *H. chelifer* (Müller), among other things by the first antennæ being nine-jointed instead of eight-jointed, and by the inner expansion of the proximal joint of the fifth pair of legs bearing four marginal setæ instead of three. *H. chelifer* has been recorded by Wright[3] as occurring at Canso and also by Williams[4] from Rhode Island waters, where *H. uniremis* was also found. It is possible *H. chelifer* also occurs at St. Andrews; indeed, certain forms were identified as belonging to that species when the study of the collection was begun, but the identification was made with insufficient literature and before access was obtained to Sars' Monograph, and opportunity has not occurred for confirming the identification. It seems probable that it was erroneous in the majority of cases.

A second (or third) species of *Harpacticus* was one which closely resembled that described by Sars as *H. gracilis* Claus, differing from *H. uniremis* by the greater relative shortness of the terminal portion of the first antennæ and by the two terminal joints of the endopodite of the first pair of legs being confluent.

Two species of *Zaus* were observed, distinguishable by the form of the fifth pair of legs. One was evidently *Z. abbreviatus* Sars, hitherto recorded only from the coast of Norway and from the islands north of Grinnell Land; the other apparently *Z. spinatus* Goodsir, previously known from the eastern coast of the Atlantic and from the Arctic ocean. *Idya furcata* (Baird) was also occasionally found. It is a species of wide distribution, and has been recorded from Rhode Island by Williams.

A few examples of *Parathalestris Jacksoni* (Scott) Sars were also observed, a form not hitherto recorded from the Western Atlantic, a statement also true for *Halithalestris Croni* (Kroyer) a single example of which was taken, unmistakeable from its exceedingly long and divergent furcal rami.[5]

Cirrhipedia.

A few Cirrhipede larvæ were observed in one of the October collections and again on February 20, February 26, and March 2. On March 6, they were present

[1] W. Giesbrecht and O. Schmeil. Copepoda I. Gymnoplea. Das Tierreich, Lief. 6, 1898.
[2] G. O. Sars. An Account of the Crustacea of Norway. Vol. V. Bergen, 1911.
[3] R. R. Wright. The Plankton of Eastern Nova Scotia Waters. Contr. to Canadian Biol., 1902-5. Ottawa, 1907.
[4] L. W. Williams. Notes on the Marine Copepoda of Rhode Island. Amer Nat. xl, 1906.
[5] In the table all the Harpacticidæ have been grouped together under a single heading, since with the exception of *H. uniremis* they were of very occasional occurrence and then only in small numbers.

in considerable numbers in the surface plankton, and on March 20 they became very abundant, and continued to be so, with some occasional diminutions, until April 21. The appearance of these *Balanus* larvæ in large numbers was, accordingly, coincident with the vernal increase of the phyto-plankton, corresponding almost exactly with the increase of *Biddulphia*, *Coscinodiscus* and *Fragilaria*, and preceding slightly that of *Thalassiosira*.

Malacostraca.

Of the remaining groups of Crustacea, relatively few representatives were observed, and only at rare intervals. Two examples of the Schizopod *Thysanoëssa inermis* (Sars) Hansen were taken January 1, both belonging to the variety *Rhoda* of Hansen, who finds intermediate stages between the forms described as *Rhoda inermis and Thysanoëssa neglecta* and has united these into a single species with two varieties.[1]

Zoeas were also observed on various occasions, but their numbers were few, and no attempts were made to determine the species represented by them.

PROTOCHORDATA.

Tunicate larvæ and Appendicularians were observed, the former in considerable numbers, on November 11, and in the early part of January, the latter only rarely in October. The Appendicularians were not in a satisfactory condition for exact determination, but apparently both *Fritillaria* and *Oikopleura* were represented.

PISCES.

A few pelagic fish eggs were taken on two occasions, April 21 and May 13, but it was not possible to determine their source, since their preservation had rendered them almost opaque. A young fish, about 1 cm. in length was also taken on April 21 at the 3-fathom level. It was a young example of *Liparis liparis* Linn. and had evidently been engaged in feeding upon plankton Copepods, one of which was observed within its jaws.

This fish, with its suctorial disk, is essentially a bottom form, its suctorial disk being an adaptation to that mode of life, and its capture in a plankton-net is therefore a matter of some interest.

NOTE.—A further study of the plankton in the neighbourhood of St. Andrews during the past summer has revealed errors in the identification of two of the forms mentioned above. That which was doubtfully regarded as *Rhizosolenia gracillima* proves to be *Thalassiothrix longissima* Cleve and Grunow, while the forms identified as *Eurytemora hirundoides* were probably merely immature examples of *E. herdmani*. This latter correction is based upon observations kindly communicated by my friend, Dr. Arthur Willey.

[1] See H. J. Hansen. The *Crustacea Euphausiacea* of the United States National Museum. xlviii, 1915.

DEPARTMENT OF THE NAVAL SERVICE

TABLE Showing the distribution of the Plankton elements during the Winter of 1914-15, at St. Andrew N.B. 9

4=abundant; 3=frequent; 2=occasional; 1=rare.

Locality	Depth in Fathoms	Amt. in Cub. c	Temp. Air, Fahr.	Temp. Water Fahr.	Tide	Coscinodiscus	Rhizosolenia	Biddulphia	Chaetoceras	Thalassiosira	Rhizosolenia	Thalassothrix	Coscinodiscus	Schizonema	Fragilaria	Pleurosigma	Rhabdonema	Cladophora	Ceratium tripos	Ceratium fusus	Dictyocysta	Tintinnidium	Histiotrama	Amphorella hyrge	Annelid larvæ	Sagitta	Mollusca	Eolis	Polychaeta	Calanus finmarchicus	Pseudocalanus minutus	Temora longicornis	Eurytemora hirundoides	Harpacticoid	Podon	Evadne	Copepod nauplius	Copepod adult	Cirripede nauplius	Ostracoda	Amphipoda	Harpacticoida	Balanus	Gammarus larvæ	Appendicularia	Fish ova and larvæ	Remarks
Dandrumach Hr.	8	11	57	52°	1 hr. ebb	2												1																											
Dandrumach Hr.	6 m.	27 5	57°	52°	1 hr. ebb																																							
Point.	8	31	48°	51°	" ebb	1												3	1	1										1	2	2													
Point	6 m	25	48°	51°	" ebb	1	1	1																		3																	
Point	8	13	48°	51°	1 hr. flood	2								1																			1										
Point	6 m.	29	48°	51°	1 hr. flood																																							
Head of St. Croix R.	8	12	44°	48°	1 hr. ebb																																							
Calais town	6 m.	34	44°	48°	1 hr. ebb																																							
Calais	6 m.	4	26°	46°	1 hr. flood																																							
Johnstown	8	7-5	36°	46°	1 hr. flood	3																																					
Field Cove	6 m.	10	46°	42°	" ebb																																							
Point	8	16 5	46°	42°	" ebb	1																																						
Point	6 m.	27 5	46°	42°	" ebb									1																														
Cove	8	13	46°	42°	" ebb													1																										
Light	8	9	42°	43°	1 hr. ebb	1																																						
Light	6 m.	26 5	42°	43°	1 hr. ebb													1																										
"	8	9	42°	43°	High													1																										
"	6 m.	36	42°	43°	High													1																										
Andrew's Hr.	8	7-7	26°	39°	1 ebb	1	1																			2																	
Andrew's Hr.	6 m.	25	26°	39°	1 ebb	1												1																										
Station	6 m.	35	28°	38°	1 hr. flood																					2																		
"	8		22°	39°	2 hrs. ebb	1	1	1		1								2	1												2													
"	6 m.	8 8	22°	36°	2 hrs. ebb																					3																	
Andrew's Hr.	8	10	38°	37°	1 hr. to high	1								2				1	1	2						3																	
Andrew's Hr.	6 m.	16	38°	37°	1 hr. to high	1																				3																	
Station	8	5-5	30°	36°	High	3	1	1		1				1	2			1								3																	
Station	6 m.	12	30°	36°	High													1								3																	
Light	8	5-5	30°	34°	1 hr. to high	3								2	1				2	2																							
Light	6 m.	9	30°	34°	1 hr. to high	3																																					
Point	8	5 5	35°	34°	High	2	1											2	1							2																	
"	6 m.	5 5	33°	34°	"																					2																	
"	8	22	33°	34°	"	1												1								2																	
"	6 m.	42	33°	34°	"													1																									
Station	8	12	40°	34°	1 hr. to high	1				1																1	1			1													
"	6 m.	37 5	40°	34°	1 hr. to high																					2																	
"	8	11	32°	33 5°	1 hr. ebb	1																								1	4											
"	6 m.	35	32°	33 5°	1 hr. ebb		1																			1				1	3											
Andrew's Hr	8	16 5	37°	33°	1 hr. ebb	2	1								1																											
"	6 m.	31	37°	33°	1 hr. ebb																																						
"	8	12	33°	33°	1 hr. ebb	4	2																																			
"	6 m.	27 5	33°	33°	1 hr. ebb	1								2	1																											
Station	8	6	36°	33°	1 hr. ebb	2												1																									
"	6 m.	17-5	36°	33°	1 hr. ebb	1	1											1								1	2	2		2	1									1	1		
"	8	27 5	33°	33°	1 hr. to high	3	4	1						1		2		1	2		2																			1	2		
"	6 m.	25	27 5°	33°	1 hr. to high	2	3	1						1	1	1																											
Andrews	8		38°	33°	1 hr. to high	3	2			1				1	1	1		1	1	1						2																	
Andrews	6 m.	14	38°	33°	1 hr. to high	1	1																			3				1	4											
Point	6 m.	3	44°	37°	High	3				3						1		1																							1		
Andrew's Hr.	8	8-5	30°	33°	"	4	2	1						2	1		1	2								1														2	3		
Andrew's Hr.	6 m.	20	30°	33°	"	4	2							2	1	2		2								1				2	2									1		
Light	8	4 5	36°	33°	2 hrs to high	2	2							1	1			3																								
"	6 m.	13	36°	33°	2 hrs to high	3	3							2	1	1														2												
"	8	7 5	40°	33 5°	2 hrs to high	4	4							2				1																								
"	6 m.	20	40°	33 5°	2 hrs to high	3	3							1												3																
Bar	8	4 5	50°	34°	1 hr. flood	4	4	2						2	2											3	1			2												
Bar	6 m.	12	50°	34°	1 hr. flood	2	3											1																								
Station	8	5	40°	34°	1 hr. flood	2								1	2											2	2			2												
"	6 m.	6 5	40°	34°	1 hr. ebb	2	2							2	2	2																										
"	8	7 5	34°	34°	1 hr. flood	4	3	1	4						1	4																										
"	6 m.	13	34°	34°	1 hr. flood	4	1	1	1					1	1	2		1								1																
Andrew's Hr	8	18 5	45°	35°	Low.	2	2							4	4											1	1			4												
Station	8	5 5	40°	36°	3 hr. ebb	4	3	3	4	3						2	1	3	2											4	1											
Station	6 m.	13	40°	36°	3 hr. ebb	3	1		1	2				2	2		1	2																								
Point	8	20	44°	37°	High	4	3	1	4					2	2											3															
Station	6 m	31	44°	38°	1 flood	3	4		4						1																										
"	8	3 5	52°	38°	2 flood	3	3		4																																
"	6 m.	5	52°	38°	flood	2	3		4					1												2																
Point	8 m	4 5	52°	40°	2 hrs to low	2			4																																
Point	S		49°	39°	1 hr. to high	1	1	1	4					1																											
Point	6 m	20	45°	39°	1 hr. to high	1			4									1	1							1																
Head	8	9	50°	41°	2 hrs to low				4										2	2																					
Head	6 m.	16 5	50°	41°	2 hrs to low				4					1				2	2																						
"	8	31	50°	44°	1 hr. ebb	2			4																	3																
"	6 m.	13	50°	44°	1 hr. ebb	2		1	4																	2																
Station	8	48°	41°	ebb			2	4										2	3							3	2														
Station	6 m.	10 5	48°	41°	ebb				4																	4																

DIATOMS AND LOBSTER REARING.

By Prof. W. T. MacClement, M.A., D.Sc., Queen's University, Kingston.

The entirely commendable desire to increase the annual crop of lobsters, and thus add to the income of the fishermen as well as to the supply of a delicious sea food, has prompted attempts at the semi-domestication of the lobster. A creature may be said to be domesticated when it will reach full size, will reproduce freely, and will live about the normal life-time of its kind, in the artificial conditions furnished by man. We are as yet far from reaching such a desirable state of affairs in our relations with the lobster. While mature female lobsters, captured in the sea, will extrude eggs freely in captivity, we have not yet, in the few experiments made, so closely approximated to the conditions required for the health and growth of young lobsters, as to see before us in the near future the prospect of large and successful lobster gardens, maintained by the amphibious farmers of the Maritime Provinces. The account of the experiments inaugurated by the Biological Board of Canada will be found elsewhere.* With only one factor of the environment of the lobsters has the present writer had intimate relations, and it is with that this article deals.

1. Actions of Lobster Larvæ.

For several days after they are hatched, young lobsters show a desire to occupy water that is well lighted. They crowd to the lighted side of a glass vessel, and within a few seconds will have deserted the shaded for the sunny portion of the water in which they are lying. Otherwise they show little recognition of direction in their movements, sinking quietly or jerking themselves apparently aimlessly up or down or laterally through the water, often with their backs or heads downward, and with their bristly outer leg-branches constantly vibrating. Their spasmodic movements are probably the result of various stimuli besides that of light, as is shown by the fact that they seize greedily any small object that seems likely to make them a satisfactory meal. When the minute lobsters are crowded together, this edible object is quite likely to be another lobster of the same brood. The stronger of the two immediately shows how fond he is of his relative by eating as much as possible of him or her. Cannibalism is one of the factors always to be kept in mind in connection with artificial arrangements for rearing the lobster.

Whether the lobster larvæ normally seek the lighted surface layers of the sea in which they are hatched is unknown, as few of them have been captured in open waters, and very little is known of the details of their lives when free. Surface layers may or may not be their natural haunts, but all attempts at rearing the young lobsters have been made in well-lighted and somewhat shallow enclosures. The idea is accepted by the experimenters that the young lobsters are attracted to the bright surface waters, that there they are visible to the perpetually hungry larger denizens of the ocean, such as the schools of herring and mackerel, and that consequently myriads of the lobster larvæ are devoured before they have learned even the alphabet of self-defence. After they have moulted a few times, four or five, they acquire the form and features, though minute, of the adult lobster, and show the adult habits of seeking concealment, and of using their claws as weapons of defence. Hence it is believed

* See Professor Knight's Report on Lobster Sanctuaries and Hatching Ponds. Canadian Biology, 1914-1915. Supp. 5th Ann. Rep. Dep. of Naval Service, 1916, pp. 41-54.

desirable to protect the lobster larvæ against each other, against hungry alien enemies, and against starvation, until they show at least some signs of knowing how to care for themselves.

2. Diatoms on Lobster Larvæ.

Well-lighted waters have many inhabitants, notably minute plants, and some of these show a tendency to attach themselves to the lobsterlings. This is especially true of certain forms of diatoms which normally grow attached to each other and to larger submerged plants. Mature lobsters confined in ponds and cars become the carriers of various animal and plant forms, which are not parasites but symbionts in the simplest degree, merely borne by the animal. The extent of the plant growth will naturally depend on the sunlight received by the lobster, copious growths of algæ reaching to many inches in length developing on the antennæ and other appendages, even on the eyes, when the animal has been confined for several months in shallow, muddy ponds. When such lobsters are removed to clean surroundings they gradually free themselves from all growths within their reach. Ordinarily the moulting process will completely remove all the effects of this symbiotic growth, but instances are known in which the rhizoids of the algæ have penetrated the covering of the lobster's eyes, and moulting left the creature clean, but blind.

The extent of the growth of diatoms on lobster larvæ is dependent on certain factors of which the three most important seem to be: (1) The amount of sunlight received, (2) the extent of time between moults, and (3) the activity or inactivity of the lobsterlings. We have direct evidence of the truth of the first two of these, and indirect evidence of the third. During the summers of 1914 and 1915 Dr. A. P. Knight, for the Biological Board of Canada, has carried on rearing experiments at Long Beach, Digby county, Nova Scotia. The complete description of these experiments will be found in Dr. Knight's reports for those years. The opportunity given the writer to study this interesting relationship between lobsters and diatoms was due to the kind invitation of Dr. Knight, who most generously placed all the resources of the station at my service.

In both summers the lobster larvæ were loaded with a growth of diatoms which became so great as to cause the larvæ to sink to the bottom of the boxes in which they were confined.

There they rolled about in the current caused by the movement of the stirring paddles, but were soon found to be dead. Their destruction was probably caused by exhaustion, and by starvation. The impeding masses of diatoms so clogged the mouth parts and the legs as to prevent the larvæ from securing food.

Similar difficulties were experienced by United States experimenters in lobster rearing at Wickford, Rhode Island, the diatom infesting the larvæ there being *Licmophora tincta* Grun. During the summer of 1914 the lobster larvæ in Dr. Knight's care at Long Beach, Nova Scotia, were destroyed by *Synedra investiens* W. Sm., which normally grows on an alga, especially on *Ectocarpus*.. This formed almost the entire growth observable during that summer, the only other forms present being *Cocconeis scutellum* Ehr. and *Lichmophora Lyngbyei* (Kutz) Grun., and these were not plentiful. In 1915, however, it was the last-named species which took possession of the larvæ and reproduced themselves so rapidly as to prove destructive. The following record will indicate the rate at which they became troublesome to the young lobsters. The figures represent only approximations, as in all probability some diatoms were in positions where they could not be seen. The lobster larvæ were carefully scrutinized under a microscope, and care taken to make the counts as accurate as possible.

August	2.	Lobster larvæ	2	hours	old	No diatoms.
"	3.	"	" 24	"		"
"	4.	"	" 48	"		About 15 diatoms.
"	5.	"	" 60	"		" 75 "
"	5.	"	" 70	"		" 150 "
"	6.	"	" 96	"		Over 350 "
"	7.	"	" 120	"		" 500 "
"	8.	"	" 144	"		Masses of diatoms.

3. Importance of Diatoms to Fish.

The complete dependence of animal life on plant life is recognized by all. Diatoms are probably the most important of those very simple plants which take up inorganic substances from water and air, and transform these by the aid of sunlight into living organic matter.

This organic matter then serves as the chief food of crustaceans and mollusks on which many fish live. The most careful study of aquatic life gives to diatoms the proud position of being a large part of the fundamental food on which the animal life of the water depends, and in this sense the expression is true that "All fish are diatoms."

4. Structure of Diatoms.

Diatoms are plants of the simplest kind, that is, each diatom consists of but one cell, and a cell is the simplest thing that can be recognized as alive. The greatest peculiarity of diatoms is the fact that each one has a skeleton of silica which is mostly outside the plant, and therefore might be called a shell or case. This shell is often very beautifully marked with lines of nodules or of depressions or of both, and these markings are so minute that they were long thought to be merely grooves and ridges. Diatoms may well be compared with bacteria, which are also minute plants. Diatoms differ from bacteria in being usually very much larger, in having the siliceous shell, and in having chlorophyll. This latter substance enables them to use the sunlight in making their own food, while bacteria, lacking chlorophyll, have to absorb food made by other plants. Bacteria are therefore classed with that large group of dependent plants—the fungi, while diatoms rank with the independent plants. Diatoms reproduce in much the same way as do bacteria, that is, by each mature diatom splitting into two diatoms, after the two valves of the shell have been pushed apart by the growing protoplasm within. Two new valves or half-shells are then formed, and thus each new diatom has one old valve and one new one in its shell. This splitting process, as in bacteria, may go on very rapidly if food and temperature be favourable, and it will result, at any point, in doubling the numbers of diatoms many times in a few days.

In form, diatoms are exceedingly various, such as discoidal, cylindrical, spindle-shaped, and wedge-shaped. Some are made up of segments, which are smooth or spiny, and variously fastened together; some form long ribbons by adhering closely side by side; others occurs in gelatinous tubes in which the individuals are closely packed. The majority of them are free and have some power of locomotion, but some grow attached to larger objects by gelatinous adhesions or even stalks. Of this latter sort are the kinds which have proven so prejudicial to the growth of the young lobsters.

Synedra investiens W. Sm., is cigar-shaped or slightly spindle-shaped when seen from the front, and narrowly rectangular in side view, and grows in clusters which are closely attached to the supporting object, and radiate from the point of attachment. It is marked by cross striations which number about nine in ten microns.

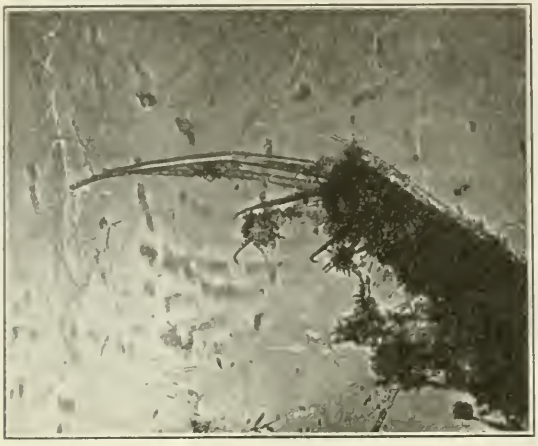


Fig. 1.

Synedra investiens W. Sm. on leg of lobster larva.

Fig. 2.

Licmophora Lyngbyei (Kutz.) Grun. on leg bristles of lobster larva.

Licmophora Lyngbyei (Kutz.) Grun. is wedge-shaped in the front or valve view, and club or paddle-shaped when seen in profile. The nucleus in *Licmophora* is usually visible near the centre of the cell, which is generally filled completely with yellowish granules. The markings on the shell are delicate, and appear as transverse ridges along the edges of the valves, varying from twelve per ten microns near the base, to fifteen near the upper or broad end. The stalks on which the individuals grow are slender and colourless, and may be so short as to be indistinguishable, or may reach to four or more times the length of the valves.

The usual habitat of *Licmophora* is the surface of submerged seaweeds, especially *Chorda filum*, which is common in St. Marys bay along the shore near Long Beach pond. The source of this diatom is therefore the ocean water entering the pond through a pipe at every high tide. It has also been found attached to Copepods. It is rather

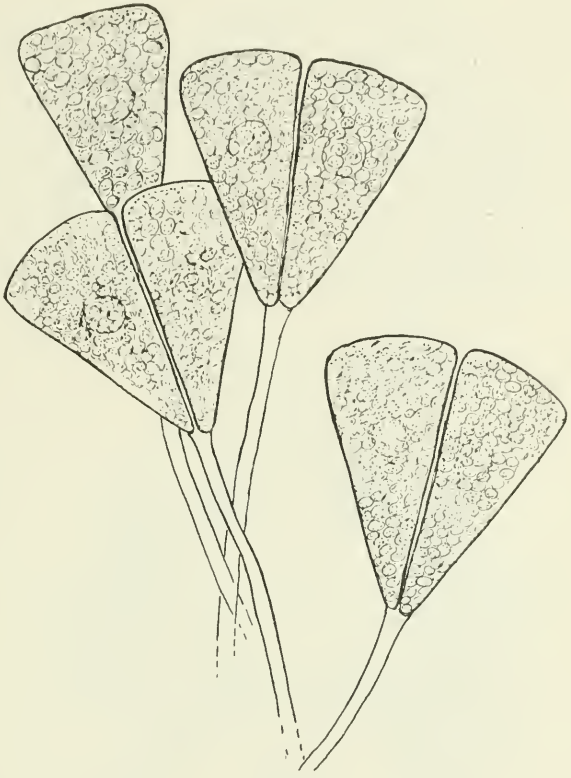


Fig. 3.

Licmophora Lyngbyei (Kutz) Grun, drawn under high magnification, showing the transparent gelatinous stalks.

remarkable that during the summer of 1914 *Licmophora* formed probably less than 1 per cent of the diatoms attached to the lobster larvæ, while in 1915 it formed almost a pure culture, entirely replacing *Synedra investiens* of the preceding year. No satisfactory reason can now be given for the difference. During the summer of 1914 the rearing boxes occupied a position about 200 yards from their location in 1915. The sea-water surrounding them there could not, as in 1915, enter freely through a pipe reaching to the sea, but filtered through a wide sea-wall of boulders. Until we know more of the factors affecting the growth of the various kinds of diatoms, we can merely state these facts without relating them to results.

5. Prevention of the growth of diatoms.

Two methods of discouraging or preventing the development of the diatoms on the lobster larvæ were briefly tested. One was the use of copper as an algicide, and the other was the reduction of light for the lobster larvæ. Both were very incomplete experiments, but the facts learned will be of service in future attempts at control. It has long been known that copper is an excellent fungicide, and its toxicity toward the

higher plants such as dandelions and wild mustard, is of importance in agriculture. Dr. George T. Moore (U. S. A. Plant Industry Bulletin 76, issued 1905) has demonstrated the practical application of this to the purification of water supplies containing objectionable algæ. The method of using the copper is to dissolve copper sulphate in the water to the extent of one part to from five millions to twenty millions of water. This dilution served to kill such delicate forms as those producing the well known *water bloom* of August and September. For the more hardy organisms such as diatoms it was found that the amount of copper sulphate required was as high as one part or more per million parts of water. The results quoted above were accepted as correct, and the effect of such solutions of copper sulphate on lobster larvæ was examined. Vigorous larvæ, placed in fresh sea-water containing one part copper sulphate per million of water, all died within three and a half hours, although four-fifths of them lived for more than two hours. Another lot of the same copper sulphate solution was diluted to contain one part of copper sulphate in two million parts water. In this the larvæ lived more than four hours, but all were dead within six hours. In another lot of the solution diluted until there was only one part copper sulphate in three millions of water, the larvæ lived but little longer.

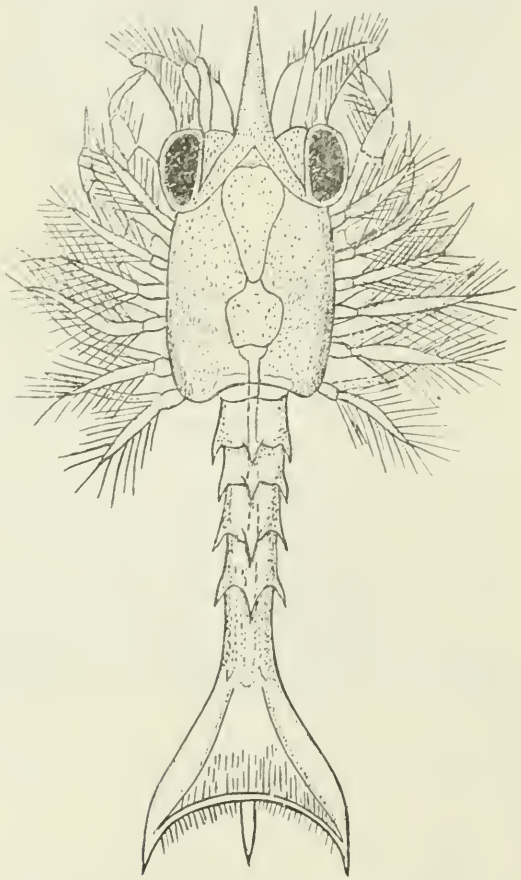


Fig. 4.
Drawing of lobster larva two hours after hatching.
No diatoms could be found attached to it.

Control experiments, exactly similar in every respect, except that the water contained no copper sulphate, were made in each case, the lobster larvæ remaining

healthy and active for several days. If, as stated, diatoms require for their destruction one part of copper sulphate per million, it is clear that this algicide cannot be used in sea-water in the presence of lobster larvæ.

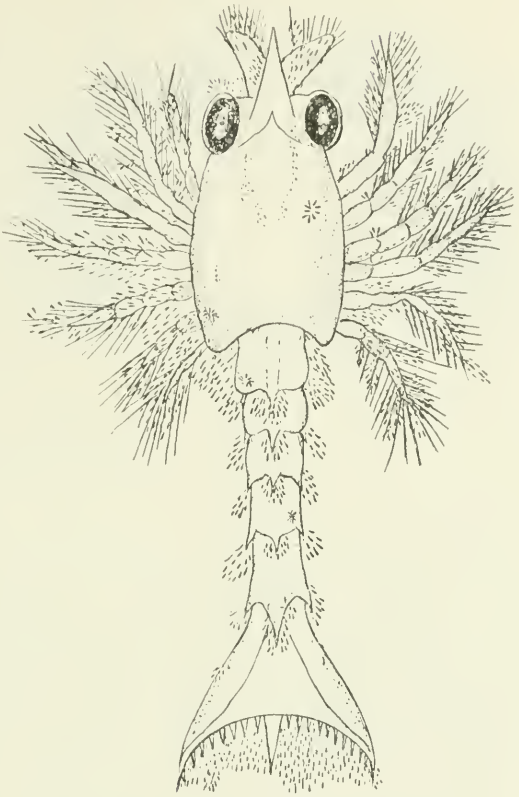


Fig. 5.
Drawing of lobster larva, twelve days old, exposed to sunlight every day. These larvae were all dead by the fourteenth day. The appendages are loaded with diatoms.

The second plan of control gave more promising results. For a plant to make its own food, sunlight is necessary. Diatoms, being independent plants, must have sunlight in order to make satisfactory growth. Ten thousand larvæ in one rearing-box were exposed to the light as usual, while a like number in a neighbouring box were kept shaded by a screen of canvas painted black, and placed horizontally over the box, within about 6 inches of the surface of the water. The larvæ were already four days old when the shade was applied, and on an average they carried between 350 and 500 diatoms each. They were examined after forty-eight hours of shading, and an improvement in their condition was apparent. Careful counts gave an average of 209 diatoms on each larva. Daily examination showed a satisfactory decrease in the number of diatoms. These shaded larvæ began moulting at the end of nine days, while those unshaded did not moult until they were thirteen days old. At the end of twelve days the shaded larvæ were active, and apparently suffering no inconvenience from the few diatoms that adhered to them. This was in striking contrast to the larvæ which had not been shaded, and which were loaded with masses of diatoms on every appendage, as indicated in the drawings.

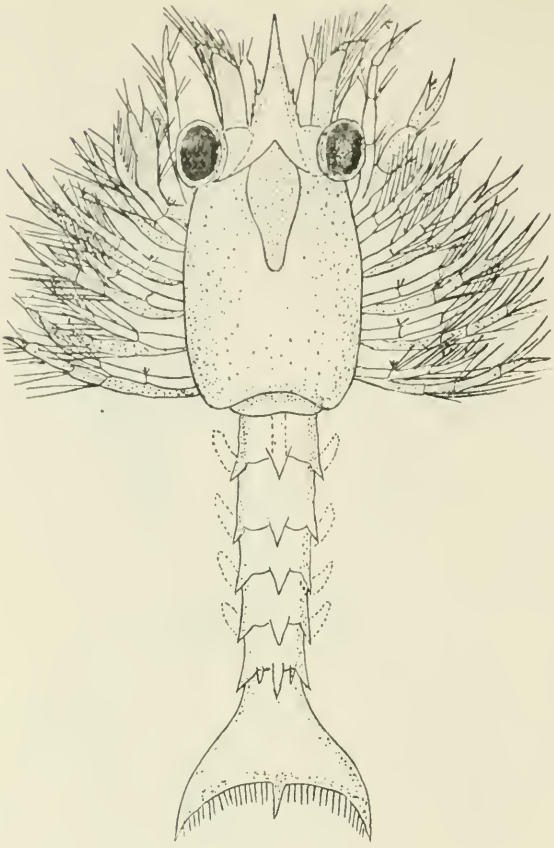


Fig. 6.
Drawing of lobster larva, twelve days old, carefully shaded from the fourth to the twelfth day. These larvae moulted on the ninth day, and show the swimmerets and the serrations on the beak which are the marks of the second phase.

6. Diatoms found in the Rearing Boxes.

While *Licmophora* was by far the most plentiful diatom on the lobster larvæ in 1915, other kinds were present in the rearing boxes, and occasionally on the larvæ. A few ribbons of *Fragillaria*, probably *hyalina* (Kutz) Grun., were found with the *Licmophora*, adhering to the bristly appendages of the larvæ. Others collected from the stirring paddle or from the bottom are named below, plentiful in about the order of arrangement:—

Amphora coffaeformis (Ag.) Kutz.
Cocconeis scutellum Ehr.
Paralia sulcata Ehr.
Rhabdonema adriaticum Kutz.
Nitzschia longissima (Breb.) Ralf. var. parva, Van H.
Navicula (*Stauroneis*) *spicula* Hickie.
Melosira nummuloides (Bory) Ag.
Grammatophora marina (Lyng) Kutz.

Nitzschia closterium W. Sm.
Acnanthes subsessilis Kutz.
Fragilaria fenestrata Grun.
Amphora quadrata Breb.
Synedra affinis Kutz.
Coscinodiscus excentricus Ehr.
Grammatophora angulosa Grun.
Chaetoceras cinctum Grun. (?)
Pleurosigma affine Grun.
Nitzschia panduriformis var. minor Grun.
Actinoptychus undulatus Ehr.

There were also many individuals of the protozoan, *Peridinium lenticulare* Ehr.

Scrapings from the carapace of a mother lobster, from which larvæ were hatched, gave a few diatoms, but the plant growth on the creature was almost entirely *Ectocarpus,* the diatoms being merely entangled in this alga.

Licmophora Lyngbyei (Kutz) Grun.
Cocconeis scutellum Ehr.
Grammatophora marina Grun.
Scoliopleura tumida Grun.

While the above were sufficiently numerous to infect the larvæ with diatoms, *Licmophora* in particular, the numbers which accumulated on the larvæ could not be accounted for by drifting or swimming forms. The almost pure growth of *Licmophora,* its firm attachment to the larvæ, and the increase in diatoms day by day, when exposed to sunlight, all point to their rapid reproduction *in situ,* as the cause of their great numbers. Another evidence was the fact that the plankton net, towed in the water about the raft which supported the rearing boxes, collected comparatively few *Licmophora,* but many individuals of other species. The species named below were found to be plentiful in about the order they are named:—

Chaetoceras decipiens Clave.
Cocconeis scutellum Ehr.
Pleurosigma elongatum.
P. angulatum W. Sm.
Paralia sulcata (Ehr.) Clave.
Fragillaria hyalina (Kutz) Grun.
Nitzschia longissima (Breb) Ralfs.
Chaetoceros dichaeta.
Actinoptychus undulatus Kutz.
Licmophora Lyngbyei (Kutz) Grun.
Amphora quadrata Breb.

Attached to the timbers of the rafts, and to the ropes by which the structure was anchored, was a thick growth of *Homoeocladia capitata* H. L. Sm. Its brown masses showed a definite relationship to the aerated surface waters, being entirely lacking where the ropes reached down a few feet from the free atmosphere. The plankton net collected also many specimens of *Peridinium lenticulare* Ehr. and *P. reniforme,* while *Ceratium tripos* Nitsch, was not rare, and the Silico-flagellate, *Distephanus speculum* (Epr.) Haeckel, was common.

From the waters of St. Mary's bay, in front of the intake pipe of Long Beach pond, the plankton-net collected a few specimens of *Licmophora Lyngbyei* (Kuntz) Grun, but the catch was very rich in the common Bay of Fundy forms:—

Chaetoceras decipiens Cleve.
C. dichaeta.
C. eriophyllum Cast.
Rhizosolenia styliformis Bright.
Coscinodiscus concinnus W. Sm.
Cocconeis scutellum Ehr.
Nitzschia longissima (Breb) Ralfs.
Paralia sulcata (Ehr) Cleve.

Along with these were the following named infusorians and crustaceans: —

Ceratium tripos Nitsch.
Amphorella subulata (Ehr) Dad.
Distephanus speculum (Ehr) Haeckel.
Ceratium fusus.
Tintinnopsis campanula (Ehr) Dad.
Calanus finmarchicus Gunner.
Podon intermedius Lill.

For verification of the determinations of several species, and for the identification of others, the writer is under special obligation to Dr. Albert Mann, of the United States National Herbarium, and to Dr. A. H. MacKay, Superintendent of Education, Halifax.

ON THE SCALES OF THE SPRING SALMON.

By C. McLean Fraser, Ph.D., Curator Pacific Coast Biological Station, Departure Bay, British Columbia.

A paper on "Growth of the spring salmon" was read at the San Francisco meeting of the Pacific Fisheries Society, August 9-11, 1915, and appears in the proceedings of that meeting. A more detailed analysis of the data on which it was based and of data obtained from new material, is here presented.

The spring salmon (*Oncorhynchus tschawytscha*), otherwise known as the king, tyee, chinook, or quinnat, has been the most highly favoured for investigation of all the Pacific Coast species, and much good work has been done by Rutter, Gilbert, Chamberlain, and others, largely in connection with the United States Bureau of Fisheries. By means of long-continued observations, these men and their associates have been able to put on record many facts concerning the life-history of this valuable species. In this instance, some additions, obtained by the methods recently made use of in the North Sea investigations by Hjort, Dahl, and others, are offered. McMurrich and Gilbert have included the spring salmon in the species of which the age at maturity was discussed. Incidentally, that phase of the study of scales will be considered in connection with an investigation into the rate of growth, and its bearing on the life-history of the species.

The validity of the conclusions drawn from scale study depends largely on the interpretation of the "annual rings" or "winter checks." The propriety of introducing these terms has been seriously questioned by many who have failed to see such a significance in the portions of the scale under discussion. It seemed useless to go on with scale investigation unless some definite assurance could be obtained on this point. Two species, the Pacific herring and the spring salmon, may be obtained throughout the year in the strait of Georgia, and hence these offered a basis for information. For reasons given later, the spring salmon was chosen and an investigation that began with the idea of personally settling the "winter check" question was enlarged to include other points in connection with the life-history.

THE "WINTER CHECK."

There is no disputing the fact that in the scales of some species of fish there are areas arranged concentrically, having a different appearance to the remainder of the scale. As they are concentric they may be appropriately called "rings." Under normal conditions of growth is there one of these rings formed on each scale during each year?

Einar Lea has investigated the matter in the case of the North Sea herring, and the argument he advances is a convincing one.[1] By examining herring of the same year class, caught at short intervals over a considerable period, and from these getting measurements, he concluded that the somewhat transparent ring on the scale was formed during the period from December to March, the main growth of the scale or almost the entire growth, taking place during the other months. Though this ring is annual and is produced during the winter months, his evidence shows that the rate of growth is not primarily dependent on temperature.

[1] A study of the growth of herrings, Publ. de Circonstance, No. 61, Conseil Perm. Inter. pour l'Explor. de la Mer, 1911.

In the scale of the herring the characteristic markings, the elevated lines, run transversely across the scale; the winter check, concentrically placed, consequently crosses the regular lines at right angles laterally but runs nearly parallel with them medially. The rings are narrow and, since they are formed at the margin of the scale, it is impossible to tell when a ring begins or when it ends, with any degree of accuracy. Hence Lea had to resort to many measurements and calculations of growth. Because of this difficulty it is possible to get scales more satisfactory than the herring scales, and it is for this reason that the scales of the spring salmon have been taken in preference.

The characteristic elevated lines on the salmon scales are quite different from those on the herring scales. The arrangement is concentric around a more or less nearly circular nucleus, so that each of these lines form rings, or rather partial rings, as few of them are completed on the exposed portion of the scale. These rings are wide apart in certain areas, while in other areas at regular intervals they are quite close together. Corresponding to the transparent rings on the herring scale, therefore, there are narrow bands of closely applied rings. The term "annual rings" must have a somewhat different significance in the two cases, although the cause may be similar, but it is possible that "winter check" can be applied equally well to each. The close band is so much wider than the ring in the herring scale that it is easily possible in the majority of cases to decide when it begins or ends.

As previously stated, spring salmon are to be obtained in the strait of Georgia at all times of the year, and hence, in all probability, some of them at least remain in the strait during the whole period of their existence in salt water. The fall, winter, and spring, 1914-15, were particularly favourable for getting material. As there was so little cold or stormy weather the handline fishermen were able to go out almost every day, seldom doing so without some return for their labours. A number of men from Departure Bay fished throughout the season, and it was a simple matter to obtain data at short intervals. The majority of the fish examined were caught by Mr. E. Webber, who made special effort to have the series as complete as possible. The temperature data were obtained from daily surface readings at the station, and occasional readings at depth.

The appearance of a year's growth on a salmon scale has a much closer approximation to that of the growth in a twig of wood than that of the herring scale. The area of distant rings corresponds to the loose texture of the spring and summer growth in the twig. The rings get closer during the fall until there is a compact band corresponding to the winter ring in the wood. It was to the time that the compact band made its appearance that special attention was paid.

In the scales of fish caught in the summer time, with rare exceptions, there is always a wide area outside of any compact band, hence it was evident that this close band could not be formed at that time of the year. During the fall a certain amount of retardation was indicated since the lines near the margin were closer together. Later the beginning of the more compact band was evident in some scales, then in all, and still later the outer limit was reached and the distant lines appeared once more.

In all scales of salmon caught from January 6 to March 17 there was indication of the check in growth at the margin. On the other hand, with but few exceptions, no scales obtained after April 22 and before November 27 had indication of retardation at the margin. From March 17 to April 22 and from November 27 to January 5 some show retardation at the margin while others do not, this being true even in specimens caught on the same day. The period of check here corresponds so exactly with that reported by Lea for the herring that it can scarcely be considered a mere coincidence. As the time corresponds in general to the winter season, the term "winter check" is not inappropriate.

In order to compare the temperatures of the water during the "winter check" period with those before and after, a table of surface temperatures to cover the months from October to May, inclusive, is given, as well as a table showing temperatures at depth, taken at intervals during that period. The surface temperatures were taken at the station landing float, and the deeper temperatures about four miles out, east of Five Finger island, that being the nearest point at which water over 100 fathoms could be reached. The surface readings were taken by a Negretti and Zambra deep-sea thermometer or one standardized against it and the deep-water temperatures with a Richter deep-sea thermometer in connection with a Pettersen-Nansen water-bottle.

TABLE I.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.
	°	°	°	°	°	°	°	°
1	11·8	10·5	7·4	7·9	6·9	8·4	9·4	10·7
2	11·5	10·5	8·6	8·0	7·9	7·6	9·8	11·0
3	11·1	10·4	7·6	8·7	7·4	7·6	9·0	11·5
4	11·5	10·0	8·5	7·3	6·7	7·5	9·2	11·6
5	11·8	9·9	7·6	6·4	7·3	7·7	9·4	13·3
6	11·7	9·7	7·5	6·3	7·2	7·6	10·3	13·0
7	12·3	8·7	7·7	6·7	7·9	8·2	10·4	13·9
8	12·3	9·2	6·7	7·4	8·6	7·7	9·0	13·3
9	12·7	9·7	7·9	7·7	8·4	7·9	9·8	12·8
10	12·2	9·1	7·0	7·0	8·1	8·1	10·7	12·2
11	11·6	9·8	6·3	7·2	7·3	8·1	9·9	11·8
12	11·4	9·0	7·4	8·2	7·3	8·2	10·3	11·6
13	10·8	8·3	7·0	7·6	7·7	8·5	10·3	12·0
14	10·9	8·5	7·2	7·7	8·5	8·7	9·8	12·1
15	11·6	7·4	7·4	7·3	6·6	8·5	10·9	12·6
16	11·2	8·3	7·6	7·2	8·6	8·2	11·2	13·1
17	10·5	9·0	6·3	7·1	8·5	8·2	11·7	13·4
18	10·4	8·2	6·4	7·2	7·7	8·0	11·9	13·7
19	10·0	8·3	6·7	6·5	7·4	8·6	11·7	13·5
20	10·0	8·9	6·5	6·6	6·7	8·1	10·5	13·2
21	10·2	9·2	6·5	5·7	7·2	9·0	10·6	12·2
22	10·3	9·4	6·3	6·2	7·0	9·7	11·1	12·6
23	10·8	8·8	7·1	6·7	7·4	9·4	10·8	12·2
24	10·5	8·9	7·3	5·6	7·1	9·7	11·8	12·1
25	10·3	8·9	7·0	6·1	7·1	9·7	11·3	12·7
26	10·7	9·1	7·2	6·2	7·1	9·2	11·1	12·1
27	11·0	8·8	6·9	6·9	7·6	10·0	11·0	12·4
28	10·9	8·8	7·0	6·6	8·5	10·1	10·8	9·9
29	10·8	8·6	6·5	6·9	.....	10·3	10·6	12·4
30	11·0	7·3	6·6	6·6	.....	9·7	10·6	13·5
31	10·9	.....	7·0	6·9	.....	9·0	.....	13·8
Average	11·1	9·0	7·2	7·0	7·4	8·6	10·5	12·5
Maximum	12·7	10·5	8·6	8·7	8·6	10·3	11·9	13·9
Minimum	10·0	7·3	6·3	5·6	6·5	7·5	9·0	9·9

TABLE II.

——	100f.	50f.	20f.	10f.	5f.	0f.]
Sept. 9, 1914	8·7	8·8	9·9	10·5	10·6	14·2
October 21	9·1	9·1	9·4	9·7	10·0	10·7
December 8	9·0	9·2	8·8	8·6	8·4	7·6
January 18, 1915	9·0	8·7	7·8	7·0	6·9	6·9
February 26	8·5	8·5	8·4	8·0	7·9	8·0
April 9	8·4	8·2	8·3	8·4	8·6	9·2
May 17	8·6	8·4	8·9	9·2	10·2	13·6

The readings are all Centigrade readings.

It will be seen from the tables that during the three months, December, January and February, the average temperatures differ little, but are lower than during the other months, while the greater portion of the retardation of growth takes place during January, February, and March. November, during which there was no evidence of check except during the last few days, was colder, on the average, than March, and had a lower minimum. October was almost as warm as April, and yet retardation is evident on occasion almost to the end of April. There are only 4·1 degrees of difference between the average of October and January, and only 2 degrees between the average for November and January. There may be that much difference between the temperature at the surface and at a depth of 5 fathoms (in table II there is a difference of 3·6 degrees shown thus for September 9), and 5 fathoms would certainly not be too great depth for a salmon to reach. Doubtless there is a maximum, an optimum and a minimum temperature for growth, but it is scarcely probable that if the optimum is reached at 13 or 14 degrees, 7 degrees would be at or near the minimum, and if it were, 8·6 degrees, the average for March, should be far enough away from that minimum to show a definite increase of growth instead of showing a continuation of the minimum.

If the check is due to the lowering temperature, one would naturally expect that the change should take place in all of the fish of the same species in the same region at or near the same time, and yet some have close rings beginning on November 27, while others have little or no sign of them on January 5; some have got over the check on March 17, while others retain it on April 22. Between these dates in the two cases there is a period of time equal to almost half of the time during which all show retardation. Again, if the check is due to the lowering temperature, all in the same vicinity should have checks of nearly the same width, but instead there is a great variation from one or two rings to six or seven. The variation occurs in the individuals in one year class as much as in any of the others, and after the first year is over the individuals that migrate as fry are affected in the same way as those that migrate as yearlings.

Nothing shows better the entire lack of relation between rate of growth and temperature than the graphs for each for the entire year. In making a graph for the growth rate, the average percentage of the total growth for the year was taken for each half-month. As the new growth for the year starts about April 1, that is taken for the basis of calculation. In the graph for water temperature (surface) the average for each half-month was taken also. The graph showing the percentage of the year's growth completed during each half-month is also given.

The curves for growth rate and temperature are so unlike that they are scarcely comparable. The greatest growth rate is in May, the highest temperature in August, by which time the growth rate has become materially reduced. The growth curve has a sharp ascent from the first of April until the middle of May and a very gradual descent for the rest of the year; the temperature curve has a gradual ascent from January until August and a gradual descent for the rest of the year. Half of the total growth for the year takes place during April, May and June, before the temperature has nearly reached its greatest height. During the next two and a half months another quarter is added, leaving but a quarter for the next six and a half months, but by the middle of September the temperature has decreased very little.

It may be remarked here that there is no indication of a total cessation of growth during January, February, and March, such as Lea says occurs in the North Sea herring. The growth is very much retarded but does not cease entirely. The width of the winter bands shows this to be true.

Taking all of these points into consideration, it can scarcely be maintained that temperature has any very definite primary effect on rate of growth.

Tables somewhat similar to those given for temperature could be given for density or salinity during the same period, but as they cover ground so similar it does not appear to be necessary. Suffice it to say that there seems to be just as little direct relation between salinity (as far as the limits in the waters of the strait of Georgia are concerned) and growth rate, as there is between temperature and growth rate.

With temperature and salinity eliminated as primary factors, the main emphasis must fall on the only other known variable that could have direct bearing on the growth of fish, viz., the food supply. That fish do not differ from other animals in which growth is accelerated by regular, suitable feeding, is shown by the success that attends the feeding of fresh-water fish in ponds, lakes, and streams. On the other hand fish, like other animals, cannot maintain normal growth if food is lacking or is insufficient in quantity to keep the various processes active. Existence may be continued for some time under such conditions, but it must be at the expense of the nourishment and energy stored up in the body. While that is being drawn upon, growth must be retarded or stopped altogether, and the weight may be considerably reduced.

The scale, like any other organ of the body, must be affected as the body as a whole is affected, hence the variation in the food supply, even without any other important factors, could account for the difference in the rate of growth.

In fishes like the salmon, where a portion of the life is spent in the fresh water and the remainder in salt water, there is a great disparity of growth during the two periods. The richness of the marine fauna as food supply, as compared with the fresh-water fauna, makes a decided difference in favour of the former. A difference in salinity, however, complicates matters as far as evidence goes in this case. A better illustration is afforded by the difference in the rate of growth of a trout, e.g., the cut-throat, in a small pond where food is scarce and in a lake where food is abundant or where there is a wider area over which to search for it.

The variation in the food supply would seem to account appropriately for the variation in rate of growth but, unfortunately, in the case of the spring salmon, the application is not self-evident. In the spring and summer, minute crustacea and a great variety of larvæ are abundant, hence such fish as the herring that feed on this should thrive better at that time of the year. The spring salmon takes this food also, but evidently eats many fish as well. Here comes the difficulty. To judge from the stomach contents, one might say that the salmon, by preference, feeds on the herring and the herring is abundant in the strait throughout the year. They are much more in evidence during the winter months, as the schools can readily be located near shore. During February and March they remain for long periods in the same locality, in the spawning season. Some of the salmon follow the herring into shallow water since a few individuals are caught in the herring nets, and I have seen them swimming around in a school of herring not far from shore. It may be that these are stragglers while the larger numbers remain in the deeper water where the herring congregate in the summer time.

An entirely different explanation is possible. The spring salmon may prefer crustaceans, as the sockeye and the coho seem to do, taking fish only when the crustacean supply runs short. Their presence with the herring schools may be due to the fact that they, like the herring, are feeding on copepods. There is some basis for such conclusion, for spring salmon caught in the neighbourhood of herring schools have been found to contain decapods, schizopods, amphipods, and copepods. At such time I have even found annelids of the *Nereis* type in their stomachs, the only evidence that I have seen that they are ever bottom-feeders after they leave the fresh water. Fishermen with spoon bait often catch many salmon right in the herring schools, while herring bait at such a time is useless. If crustaceans make up the main part of the food supply, then they would fare better in spring and early summer when the pelagic crustacea are so numerous. In the winter time they take to the herring in the extremity of hunger, as being the chief food available, enough to keep them alive but not enough for ample nourishment for growth equivalent to the summer growth.

If retardation of growth in the scale is due to the lack of suitable food, an explanation is readily available for the extra checks that appear between the regular winter checks, or at the margin in fish caught during the summer. Local conditions

may become such, even in the summer, that a fish cannot get a good food supply for some time, and the growth is checked. That there are not more of these checks goes to show what an abundant and well-distributed fauna there must be in the sea. Fish must be subject to periods of ill health, as all animals are, and during such times growth may be seriously retarded. This would account for the small amount of growth sometimes found between two successive winter checks.

Regenerated scales show that fish are subject to injury. As on the regenerated scales, only those rings corresponding to those formed afterwards on the normal scales appear, leaving the central portion of the scale blank. The time of the injury is thus indicated. If the injury is a serious one the normal scales on the fish may show a check on account of the retardation of growth due to the drain on the system in recovering from the injury. These checks may or may not decrease the total amount of growth for the year. In some cases it does noticeably, but in others the later growth seems to have been accelerated so as to fully make up for the lost time.

At first such extra checks may cause considerable confusion in scale reading, but after the normal scale becomes familiar, such checks, with rare exceptions, may readily be distinguished from the regular winter checks.

RATE OF GROWTH.

Since data as to length and weight of the fish from which the scales for this investigation had been recorded, these scales became available for a study of rate of growth. Since that time other material has been added. Some of this additional material was obtained from the Departure Bay fishermen, and hence is comparable to the previous material; some was obtained from the cannery at Nanaimo, some from a cannery at New Westminster (these were caught in the Fraser river), some from the Vancouver fish companies (from the Skeena and Campbell rivers), some from the cannery at Uchucklesit, Barkley sound, and a small but interesting collection from Mr. R. B. Heacock, Seabright, California. To those in charge in all these cases my thanks are due.

The lot is rather a composite one and, for some purposes, a large number from one locality taken at nearly the same time would give better results, but for other purposes, as this material contains data from specimens of all ages taken at all times of the year, from widely different localities, it is especially suitable.

In studying the rate of growth of the spring salmon it must be recognized, in the first place, that there are two types to be considered. Most observers have realized that some salmon migrate from the fresh water to the sea as fry, when they are four or five months hatched, while others remain in the fresh water throughout the first year and go down early in the second year as yearlings or fingerlings. The whole scale theory must fail if there are not two types of scales to correspond, but it does not. The most casual observer could not fail to notice that the central portion of the scale may differ materially from the corresponding portion of the scale of another individual. There is no doubt that Gilbert's interpretation of this central portion of the scale in the two types of this species is correct.

The individual that migrates as fry has no scales when it reaches the salt water, and consequently there can be no record on the scale of life in fresh water. The scale starts to develop soon after migration, the growth is rapid, and although the late start is a big handicap, the growth in the remainder of the year is slightly greater, on the average, than that of the whole second year. There is this difference, however, the fish in its first year does not seem to be able to stand adverse conditions as well as the older fish. They may not be able to partake of as great variety of food. In consequence, the distance between the rings on the scale at times start to narrow earlier so that the summer growth gradually passes into the winter growth without giving the appearance of a distinct winter check. The change from the winter

check to the next summer's growth is as abrupt as in older fish. The fry are about 1·5 inch long when they migrate, and the average length at the end of the year is about 10 inches. (Here as elsewhere in this paper the caudal fin rays are not included when the length is measured.) Some measurements, given in inches, will give some indication of the rate of growth: August 18, 5.0 (2), 5.2, 5.5 (2), 6.0, 6.5, 7.5; November 6, 10.0; December 4, 8.7; December 26, 9.7; January 28, 10.0; February 11, 10.2; March 3, 10.7; March 6, 10.2; March 11, 8.8; Apri 3, 8.8; April 6, 11.4, 8.7; April 8, 11.6; April 13, 10.4; April 14, 10.2. After this date the rapid growth had started in all the specimens examined. At this time the fish is about a year old, or slightly more, and weighs about half a pound. In the measurements given later the first year is taken to be the period to the end of the first winter check.

Concerning the later growth it is not necessary to say very much. Broad summer bands are followed in succession by narrow winter bands. In normal individuals the limit of variation is not so very great, but naturally it increases with the age of the fish. At the end of the second year the average length of the fish examined was 20·5 inches, and the weight somewhat over 4 pounds. At the end of the third year the length was 28·5 inches, and the weight 14 pounds. At the end of the fourth year the length was about 33 inches, and the weight 22 pounds. No specimens obtained had completed the fifth year.

The fry that remains in fresh water during the first year starts to develop the scale about the same time as the one that goes to sea, but as the fish in fresh water grows very slowly, the scale grows slowly also, and the rings, even in the summer time, are quite close together. In the winter they come almost together and are often incomplete or broken. The winter check can be distinguished more readily in the majority of specimens, by the narrow area of broken lines than by judging the distance between the lines. The fish is still under 4 inches in length, and hence does not compare at all favourably with the one that spent its first year in the sea. Usually the migration to the sea is made early in the spring, so that the growth in salt water is indicated immediately following the winter check. In some instances, though, there is indication of a small amount of fresh-water growth outside of the winter check before the growth in salt water commences, but it never reaches an extent similar to that sometimes found in the coho. About one-third of the specimens examined showed evidence of this growth. It would seem then that a large majority —two-thirds of the whole number in this group—migrate early in the spring, in March or early in April, and the remainder follow not so very long after, so that by the middle of May, or even earlier, the last stragglers must have disappeared from the fresh water.

After the seaward migration the growth in this type is entirely comparable to that in the other. At the end of the second year the average length is nearly 14 inches, and the weight slightly over a pound; at the end of the third year the length is over 23 inches and the weight 6 pounds; at the end of the fourth year the length is 30 inches and the weight 16 pounds. Sixth year specimens were lacking in this type also.

In making a more detailed analysis and comparison, the following data were obtained. Of 306 fish over one year old examined, 199 or 65 per cent of the whole number had migrated as fry. Of these, 83 were in the second year, 43 in the third, 59 in the fourth, and 14 in the fifth year. Of the 107 that stayed in the fresh water a year, 10 were in the second year, 18 in the third year, 44 in the fourth, and 35 in the fifth. The growth of each fish in each year has been calculated and the average for each year taken. The following table was made out for the purpose of comparison.

TABLE OF GROWTH.

"Sea Type."

Year Class.	No.	Growth During			
		1st Year.	2nd Year.	3rd Year.	4th Year.
		In.	In.	In.	In.
2nd	83	9·9	.....	.....	
3rd	43	10·0	9·8	.....	
4th	59	11·1	10·1	7·6	
5th	14	10·3	9·7	7·6	5·6
Average		10·3	9·9	7·6	5·6

Year Class.	No.	Length at End of			
		1st Year.	2nd Year.	3rd Year.	4th Year.
		In.	In.	In.	In.
2nd	83	9·9	.....	.....	
3rd	43	10·0	19·8	.....	
4th	59	11·1	21·2	28·7	
5th	14	10·3	20·0	27·6	33·1
Average		10·3	20·5	28·5	33·1

"Stream Type."

Year Class.	No.	Growth During			
		1st Year.	2nd Year.	3rd Year.	4th Year.
		In.	In.	In.	In.
2nd	10	3·6	.....	.....	
3rd	18	3·8	10·4	.....	
4th	44	3·7	10·5	9·5	
5th	35	3·7	9·6	9·4	7·2
Average		3·7	10·2	9·5	7·2

"STREAM TYPE"—*Concluded.*

Year Class.	No.	Length at the End of			
		1st Year.	2nd Year.	3rd Year.	4th Year.
		In.	In.	In.	In.
2nd	10	3·6	.....	.....	
3rd	18	3·8	14·1	.....	
4th	44	3·7	14·2	23·7	
5th	35	3·7	13·4	22·8	30·0
Average	.....	3·7	13·9	23·3	30·0

Of the mature grilse only four were obtained, all of the "sea type," in their third year. The average for them was: Growth, first year, 11·1; second year, 10·7; length at end of first year, 11·1; at end of the second year, 21·8; when caught in June, 26·0.

In the previous paper on "Growth of spring salmon," 2 inches was taken as the average length when the scale starts to develop. It has been found that this was too high for the average, 1.5 inch being much nearer the length. In these calculations, therefore, 1·5 inch has been taken from the total length of the fish in each case and the remainder divided in the same proportion as a line drawn from the margin of the nucleus to the margin of the scale, would be by the outside limits of the various winter checks. To the first year value thus obtained, 1.5 inch is added to get the length of the fish at the end of the first year. In making the calculation in this way there is no "phenomenon of apparent change in growth-rate" such as is shown in the various herring investigation tables of Hjort, Dahl, and others, making the strained explanations by Rosa Lee (Publications de Circonstance, No. 63, Conseil Perm. Int. pour l'Expl. de la Mer, 1912) and of Einar Lea (*Ibid.*, No. 66, 1913) appear necessary.

When the number examined was divided up between the two types and among the different classes, the number in any one group was not large enough to make it worth while making graphs, but some points concerning each might be mentioned.

Taking the "sea type" first, the growth for the first year varies from 7·1 to 12·7 inches, but very few are less than 8·7. The number 9·3 has the greatest number of individuals, but several others have nearly as great. In the second-year growth there are some cases abnormally small, 6.2, 6.4, 6.7, 7.2. The majority fall between 8.6 and 12·2, with 10·0 and 11·1 the most numerous. The length at the end of the second year shows much the same variety as the second-year's growth. There are low ones, 14·7, 15·8, 16·4, and 16·7, and high ones, 24·1, 24·2, and 24·5, but nearly all come between 17·5 and 23·5. The growth in the third year shows much variation between the extremes of 3·8 and 4·5 on the one hand, and 11·5 on the other, but the greater number come between 7·0 and 8·5. This makes a great variation in length at the end of the third year, all the way from 24·2 to 31·8, the majority falling between 27·5 and 29·5. In the fourth-year growth there is less variation, 4·2 and 6·7 being the extremes, but at the end of the year the length varies from 29·9 to 37·9, with one abnormally low at 28·3. Those taken in the fifth year were taken at different times and a fair comparison can scarcely be made, but with the exception of the abnormal one just mentioned, which became only 30·5, there was a variation from 33·0 to 40·0, with an average of 35·8.

In the fish of the "stream type," since the growth in the first year, after the alevin stage is passed, is small, there is little variation as given in inches, for the length at the end of the first year. The extremes are 3·2 and 4·1, with the greatest number at 3·6 and the next at 3·9. In the second-year growth there is a range from 7·7 to 12·8, but nearly all are between 8·4 and 12·0. The length at the end of the second year varies from 11·4 to 16·5, but nearly all are between 12·1 and 15·9. In the third-year growth there are three exceptionally low, 5·1, 5·8, and 6·4, and apart from this there is a variation from 6·9 to 12·5, the majority being between 8·3 and 11·0. At the end of the third year, with the exception of six abnormal ones, one of which is only 16·9, the length varies from 21·1 to 26·9, and is fairly well distributed between these extremes. In the fourth year the increase is small in two cases, 5·0 and 5·3 and high in two others, 8·9 and 9·8. The remainder falls between 5·7 and 8·4, with the majority between 7·0 and 8·0. The length at the end of the fourth year varies from 25·8 to 34·0, but nearly all fall between 29·5 and 31·5. Of those caught in the fifth year, all but three were obtained on June 22. The average length when caught was 32·4, with a variation from 28·5 to 36·5.

For material from such a variety of sources, the growth values for each year show very little difference in the different classes. The differences are greater in fishes of the "sea type," since, as the spring salmon do not all spawn at the same time of the year, some of the fry must be more or less than a year old at the end of the first winter check. With the fish of the "stream type" the growth of the first year is so small that all start on much the same basis at the beginning of the second spring.

There is one point quite prominent in both types, and hence worth considering. Those fish that have matured in their fourth year have higher average growths throughout than those that do not mature until the fifth year. From this it would seem that the larger fish of a year-class spawn in the fourth year and the smaller ones of the class spawn in the fifth year. If this is true, we should expect that those that mature as grilse in the third year should be the largest of the year class. Too few were examined to justify any definite statement, but it may be said that these do not show that that might not be so. One would need to get several fish of the same year-class for three years in succession before the conclusion would be sufficiently definite.

The comparison would be more complete if six-year or even seven-year fish (Gilbert records one fish in its seventh year) could have been included. Gilbert says very little about the six and seven-year fish that he has seen. The sixth-year scale that he figures is of the "stream type" it would be interesting to know if all the others were, as well as the nature of the seventh-year fish. The data from such would have a decided bearing on the question here discussed, but in this region, at any rate, they would not appear to be sufficiently numerous to be a factor in the commercial phase of the question.

As quite a complete series of fish up to 35 inches was obtained, and as the weight of these over 5 inches was recorded, it is possible to get a satisfactory graph to show the ratio of weight to length. The curve is as regular as one could expect from the degree of accuracy of weights and measurements. There were only ten fish in the collection over 35 inches, and these show much irregularity in weight. There were: four 35·5, varying from 21 to 28·5 pounds; one 36·0, weighing 28; one 36·5, 25; one 37·5, 39; one 38, 28; one 39, 35·5; and one 40·0 weighing 36·5 pounds.

The sex was not determined in the fish obtained from New Westminster and Vancouver, hence the data are not sufficient to say definitely if there was much difference in weight between the males and the females of the same length, as this lot contained a large proportion of the mature specimens. In those where the sex was determined there was no material difference.

In comparing the salmon of the "sea type" with those of the "stream type" throughout, the former shows to good advantage. At the end of the first year, it has a length 6·6 inches greater than the other, and a somewhat similar superiority is maintained throughout. At the end of the second year three is still 6·6 inches difference and a difference of over 3 pounds in weight, as the small fish weighs very little over a pound while the larger weighs over 4. At the end of the third year the difference in length is 5·2 inches and the difference in weight, 7·5 pounds. At the end of the fourth year, the difference in length is 3·1 inches and the difference in weight, 6·5 pounds. At the time they are caught in June and July, if they are in the fourth year, the average length of the "sea type" is 31·7 inches, and of the "stream type" 26·3 inches, a difference of 5·4 inches, and a corresponding difference in weight of 7·5 pounds; if they are caught in their fifth year, there is an average difference in length of 3·4 inches, and in weight of 6·5 pounds. As in this collection 65 per cent are fish of the "sea type," it would seem to be a good thing if the remainder should be encouraged to behave likewise. Hence, instead of keeping the fry of the spring salmon in retaining ponds for a year, and losing thereby many pounds of mature fish, it would be much better to give all of them every facility in getting down to the salt water and a better supply of food as soon as they can stand the change physiologically. The only offset there is comes from the fact that a larger number of fish of the "sea type" than of the "stream type" are mature in the fourth year. The latter has one year longer to grow in such cases. As it is scarcely any larger in the fifth year than the former is in the fourth, there is no special advantage even here. If five years instead of four are taken to produce a certain size of fish, there must be a loss of 25 per cent here as well.

It must be distinctly understood that these remarks apply to the spring salmon only, and to the spring salmon as I have found it. It does not necessarily apply to any other species of Pacific salmon. That quite the opposite is true for the coho is shown in another paper being published, and it remains to be seen what is the nature of the application in other species.

SUMMARY.

The growth of the scale in the spring salmon is a good indication of the growth of the fish. Annual bands of growth appear on the scale, each consisting of a wide portion with the lines on it somewhat distant, and a narrow portion with the lines closer together. The narrow band may be called the "winter check" appropriately, because, although the retardation of growth is due to a lack of food rather than to a lowering of the temperature, it is produced in the winter months, January, February, and March, with indications of it in December and April.

There are two types of scales, since some of the salmon migrate to the sea as fry and have no fresh-water record on their scales, while others migrate as yearlings or fingerlings after having a year of comparatively slow growth on the fresh water clearly indicated on the scales.

The majority of both types mature in their fourth or fifth years; probably a greater percentage of the "sea type" than of the "stream type" mature in the fourth year, but a majority of the whole number are of the "sea type." The fish that mature in the fourth year are, as a rule, among the larger of the year-class. Possibly if enough third-year grilse were examined there would be proof that they are among the largest of the year-class.

The "sea type" fish has a decided advantage throughout life, both in length and in weight, so much so that an average fish of the "stream type", mature in the fifth year, is scarcely larger than a "sea type" fish mature in the fourth year. If they are both in the same year when mature, either the fourth or fifth, there is an average difference of 6 or 7 pounds. Unless there is some other preponderating reason for

keeping spring salmon in rearing ponds for a year, it is decidedly unwise to do so, as, taking it either in size or in time, there must be a handicap of at least 20 or 25 per cent in favour of the "sea-type" fish.

EXPLANATION OF PLATES.

Plate I.

Fig. 1. Scale of spring salmon in third year showing summer growth at the margin, caught June 6.

" 2. Scale of spring salmon near the end of the third year showing winter check at margin, caught February 16.

" 3. Scale of spring salmon in second year showing winter check starting at margin, caught November 27.

" 4. Scale of spring salmon in second year with winter check just starting at margin, caught January 5.

Plate II.

" 5. Scale of spring salmon at the beginning of the fourth year with summer growth starting at the margin, caught March 17.

" 6. Scale of spring salmon at the beginning of the third year with summer growth well begun at the margin, caught April 5.

" 7. Scale of spring salmon at the beginning of the third year with no summer growth showing at the margin, caught April 13.

" 8. Scale of spring salmon at the beginning of the third year with no summer growth showing at the margin, caught April 22.

" 9. Scale of spring salmon in the third year, regenerated in the fall of the second year and showing the second winter check.

Plate III.

" 10. Scale of spring salmon in third year with a check showing at the margin during summer growth, caught July 26.

" 11. Centre of scale of spring salmon of "stream type" in fourth year, in which migration took place immediately after winter check.

Plate IV.

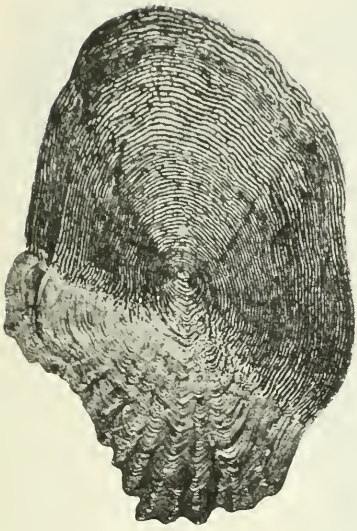
" 12. Centre of scale of spring salmon of "stream type" in second year, showing fresh water growth after the first winter check.

" 13. Centre of scale of spring salmon of "sea type" in second year.

Graphs.

" 14. A curve to show percentage for each half month of the total growth for the year. A curve to show at the end of each half month, the percentage of the whole growth of the year attained. A curve (interrupted) showing the annual variation of the temperature of the surface water.

" 15. A curve showing ratio of weight to length.



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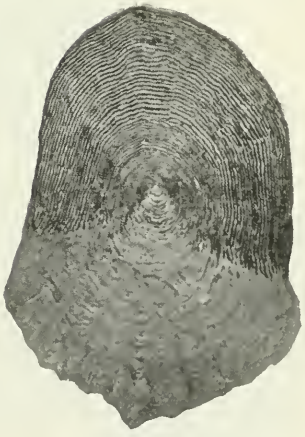

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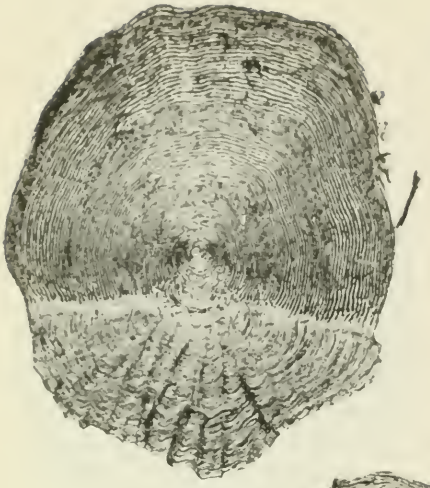
Spring Salmon.



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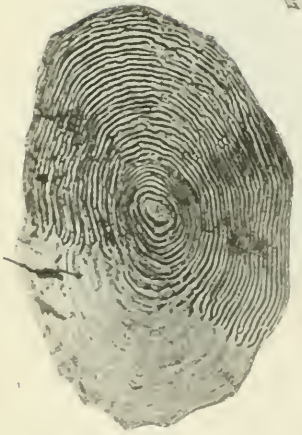

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Spring Salmon.

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Spring Salmon.

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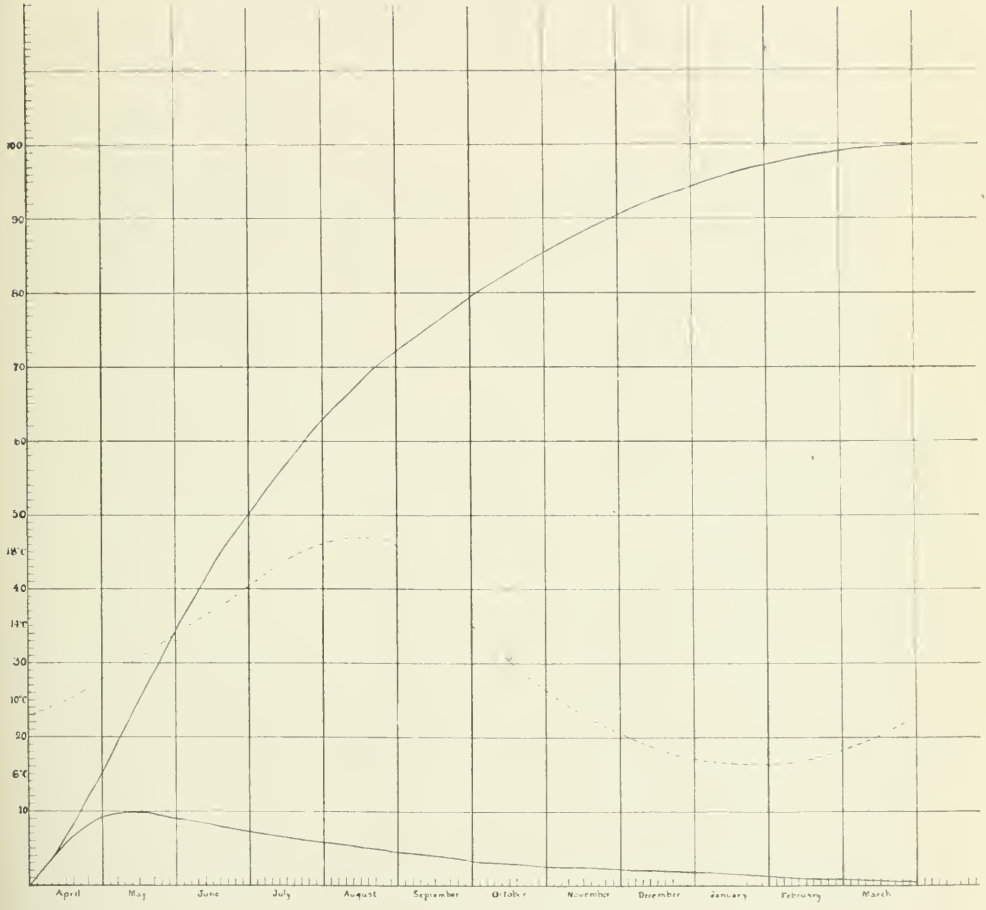
13

Spring Salmon.

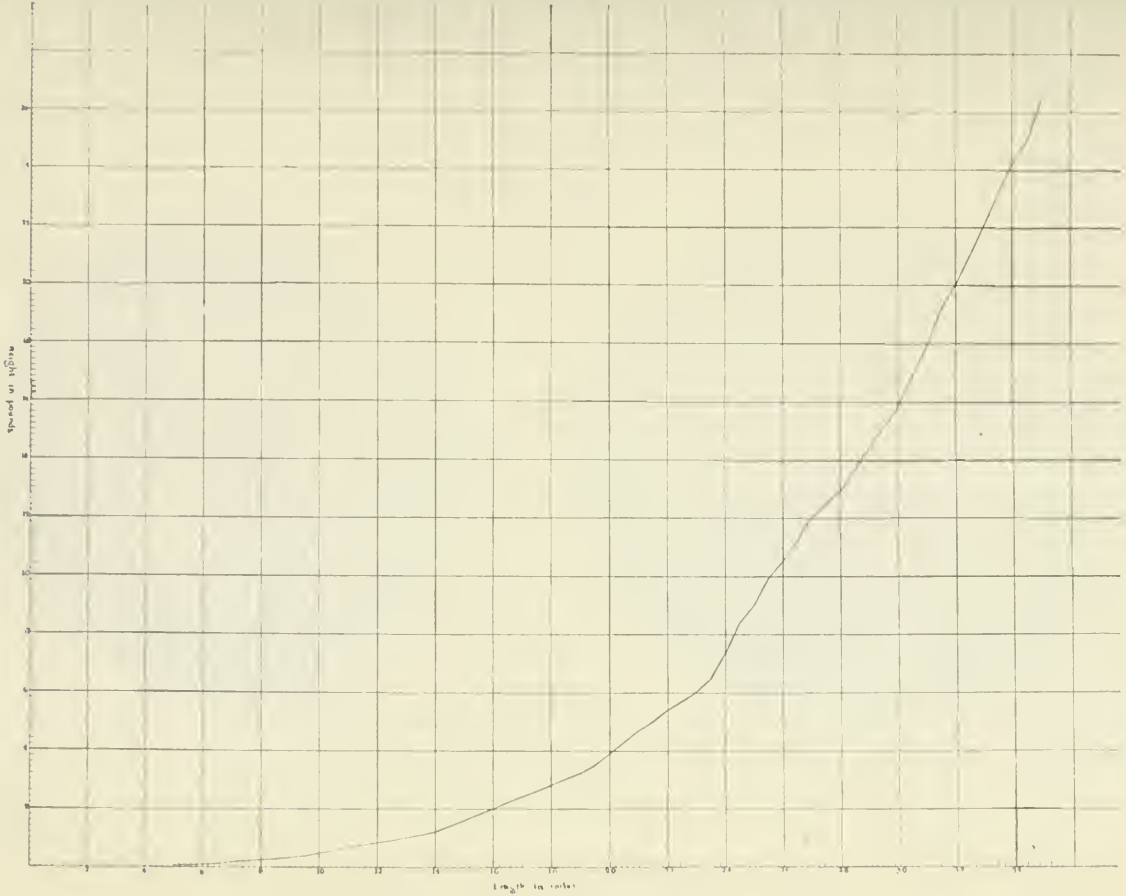
Fig. 14.



Spring Salmon.

A curve to show percentage for each half month of the total growth for the year. A curve to show at the end of each half month, the percentage of the whole growth of the year attained. A curve (interrupted) showing the annual variation of the temperature of the surface water.

Fig. 15.



Spring Salmon. A curve showing ratio of weight to length.

ON THE LIFE-HISTORY OF THE COHO.

By C. McLean Fraser, Ph.D.

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(With Plates V, VI, and VII (7 figures), and figures (Graphs) 8, 9, 10, 11, 12, 13.

The sockeye and the spring salmon, among the Pacific species, have received the monopoly of attention of investigators ever since the salmon trade became an important one on the Pacific coast, and naturally so, because these two species have been so important, commercially. In more recent years, on account of the scarcity of these at times, especially in certain localities, the other species have come more into prominence. The coho or silver salmon is now quite an important factor in the output of the canneries. In the cannery statements compiled for the Pacific Fisherman Year Books it is shown that there has been a gradual though rapid increase in the coho pack in British Columbia until, for the year 1915, it amounted to 13 per cent of the whole output. It does not show as large a percentage for that year for the whole coast, but in 1912, when the sockeye pack was very low, it reached an amount over 10 per cent of the pack for the year. Besides those that are canned, an increasing number is being put in cold storage. As the importance of the coho is thus rapidly increasing it seemed worth while to take advantage of a situation somewhat favourable for learning something of the life-history of the species.

Some work has already been done on the coho. It has been considered, along with other species, in papers on the Pacific salmon, in several papers by McMurrich and one by Gilbert. These deal largely with the age at maturity of the species. Some of the points touched on in these papers will be considered in connection with others that heretofore have not received special attention.

The favourable conditions referred to are these: Coho spawn in a small creek that flows into the head of Departure bay, and in this creek, at all times of the year, the young coho may be seen. A locality for observation is thus very conveniently situated. After they have migrated, some of them must remain in the strait of Georgia throughout their lives in salt water, and possibly they all do, as they may be caught with hand lines throughout the greater part of the year. Various stages have been obtained from hand line fishermen in Departure bay. Through the kindness of Messrs. Broder, a large number of specimens of mature fish, a good representative lot for the strait, was examined at the cannery at Nanaimo. To compare with these, through the kindness of Manager Crawford, of the Neah Bay cannery, I was able to get a number from the open ocean.

In the creek at Departure bay the mature coho appear about the middle of November. As the spawning beds are but a short distance up the stream, not more than a mile, they are soon reached, and the spawning is over by the end of the month. At the Cowichan Lake hatchery, where, until this season, the greatest number of cohos in the province were hatched, the first eggs were taken about November 10, but the spawning season lasts for a considerable time, as even after the first of February there are unspawned fish in the streams of the neighbourhood.

The eggs hatch in three months, or slightly less, but the alevins remain buried in the coarse sand or fine gravel at some distance below the surface for some time. On March 7 not one could be seen in the creek, although the last year's fry were

plentiful. On April 10 the alevins were plentiful, and by April 14 a few of them had the yolk all absorbed. They gradually work down stream and even into the brackish water. By May 6 many of them were near the mouth of the stream, but I have never seen any of them out in the bay, or anything to indicate that they ever get out into the bay during the first year. Relatively, those in the creek at any one time vary much in length. On April 14 a catch of alevins and fry varied from 30 to 39 mm. Of nineteen caught on June 29 there were the following lengths: 33, 36 (2), 37, 39, 41, 42 (2), 43 (3), 44 (2), 54, 58, 60 (2). On November 19 there was variation from 49 to 61; on March 7, from 52 to 67, with a single very small one only 42 mm. Some of them migrate to the sea as early as March, at which time they are a year hatched, but others linger in the fresh water much longer. I have seen none later than June 29, but on that date two were caught, 76 and 60 mm., and others were seen in the creek. None of them, however, remain throughout the whole second year. Evidence that this is true elsewhere will be referred to later, when the age question is considered more at length.

During the first months after migration the yearlings are seldom observed; they are too small to be retained in the meshes of the gill-nets, seines, or traps, and too small also to be attracted by the spoon that is used in catching larger fish. They grow very rapidly, and in October an occasional one is caught with the hook and line. They are now 10 to 12 inches long, each weighing 12 to 14 ounces. They do not appear in sufficient numbers to attract attention until the spring, when they are just over two years old. In the latter half of April, the schizopods become so plentiful near the surface of the water at certain times of the day that large areas become noticeably pink. As the cohos have a decided preference for small crustaceans, they appear in great numbers to gorge themselves on these schizopods. The crustaceans are almost at the surface, and the young coho may be seen in all directions, jumping out of the water. They take the spoon readily at this time but, apparently, not because they are hungry, as they may be taken with their stomachs much distended with the pink food made up of thousands of these individuals. Locally, at this time, they are called "bluebacks," but this term is used in so many different senses, as several common names are, that it is scarcely wise to mention the fact lest it give a wrong impression. At the same time, or somewhat later, the young herring are little larger than the schizopods, and they also provide excellent food material. Probably at no other time in the life of the coho is there such a superabundance of good food available, and in consequence the rate of growth is rather startling. Fish that weigh 1½ to 2½ pounds at the middle of April, will weigh 3 to 5 or even 5½ pounds by the middle of June, i.e., doubling the weight in two months. The length, which was from 14 to 19 inches in April, now runs from 18 to 23 inches. From this time on an occasional fish is caught in the vicinity of Nanaimo, but the real season for mature coho does not start until on in September. In other parts of the province it starts earlier than this. At several points from Alert bay to Prince Rupert a good catch was made last year before the end of August. These mature fish, now two years and seven or eight months old, vary much in length and weight. In the length, a variation from 18 to 31 inches has been observed, and in weight from 3¾ to 16½ pounds. They are now on the way to the streams to spawn, and their life-cycle is soon completed.

As to the food of the coho, from the time that the yolk is absorbed until maturity, there seems to be a decided preference for an insect and crustacean diet. When this is not available, reliance has to be placed on fish. In the nearby creek, as soon as the alevins work their way out of the gravel of the spawning bed, they move away from it down stream. By the time the yolk is all absorbed they are well distributed throughout the length of the stream, and not too much crowded in any one place. In consequence there probably is a supply of insect larvæ for all. Beside the coho, the only fish in

the creek is the cut-throat trout, with an occasional small sculpin or fresh-water bullhead. The cut-throat of the same year is not hatched for some time after the coho appears, and those of the preceding year are large enough to look after themselves. The young fry, therefore, have no fish as small as themselves to attack, and hence insect larvæ, with a few fresh-water crustacea must supply the demand. It is possible that those earlier hatched may attack those later hatched and that both may attack the cut-throat fry when they come out, but by this time they must have attained greater size. It is possible, too, that the yearling coho attack the fry, and the cut-throat a year or more old may do so also, as all the Salmonidæ eat fish when other food is not available, if not at other times. In this creek the cohos and the trout seem to live in harmony, as both are commonly found in the same small group.

It is a fact that when large numbers of fry are put out in the creeks from the hatchery that the older ones may be seen devouring the younger ones, but in such cases thousands, sometimes hundreds of thousands, are put out in the one creek within comparatively narrow limits so that before they become well distributed insect food must be at a premium. As the younger fry offer the only food for the older ones, very hungry by this time, they are devoured. If there are trout in the same stream they probably assist in the operation.

The statement that coho remain in the rivers for two or three years feeding on the trout is evidently absurd. In the first place, the coho does not live to be three years old, or at least there has been no evidence adduced that it does. In the second place, there is a similar lack of evidence that any of them remain in fresh water for two years. Furthermore, as the yearling coho is seldom more than 5 inches long when it migrates, and more often is considerably short of that, the injury done to the trout by it must be very much exaggerated. In reality the coho has a much stronger case against the trout, the steelhead, the cut-throat and dolly varden or char. These fish follow the coho to the spawning beds and devour so many of the eggs as soon as they are spawned that the possible number of coho fry is at once very much reduced. No matter how often the male coho turns to chase them, they follow him back, as soon as he turns, to gorge themselves once more. After the eggs are hatched the fry are attacked, and it is there that the dolly varden does the most damage. It is the general opinion of observers all the way from the Aleutian islands to California that the dolly varden does more harm to the salmon fry than any other agency, and many will go so far as to say that it does more harm than all the other agencies put together. Therefore, instead of protecting the dolly varden by a close season, it would be very much better for the salmon fisheries if everything possible were done to reduce their numbers. The case against the other trout is not so strong, but as they remain in the fresh water for a much greater portion of their lives than the coho, the balance of destruction is probably in their favour.

The food of the coho in the sea has been indicated. Pelagic crustacea form the bulk of it. Schizopods predominate if the whole year is considered but, at certain times, larval barnacles and larval decapods form an important portion. Of the fish used, reference has been made to the small herring fry. The older fry and even the herring a year or more old are eaten later in the season. Apparently they have preference over other fish. Salmon fry, sand launces and capelin are the only other fish that have to be observed. For a short period about October the 1st the capelin are taken in large numbers as they come inshore to spawn.

The mature fish feed actively until they come to the mouth of the streams up which they go to spawn, or possibly until they enter these streams. Consequently, they must increase in weight almost until spawning time.

The general rate of growth has been considered and some remarks made about the age of the coho. A more complete analysis of the relation of growth to age, depending on the examination of scales, will now follow. The method of growth determination

used is the same as that used in a prior paper on the life history of the spring salmon. In general, the winter checks show up more plainly in this species than in the spring salmon, so that there is seldom any difficulty in making out their delimitation.

The scale appears first as a small, flat, almost circular body, which becomes the nucleus of the growing scale. At that stage of the appearance of this nucleus the fry is from 31 to 34 mm. long (in all measurements in this paper the length does not include the caudal fin rays), with an average of 32·5 mm. It is this size about the end of May or early in June. The rings then begin to form. From ten to fourteen appear in the first set; these gradually get closer together, although they are not very far apart at first. The last two or three may be dim, broken, and generally indistinct. They indicate the first winter check. At the time these are formed the food supply is at its lowest ebb, so that very little growth is taking place. In March or early in April the food supply becomes more abundant and the distance between the rings increases, showing more rapid growth, somewhat similar to that near the nucleus. At migration a decided increase takes place abruptly, due to the better supply of food in the salt water. It may be that the fresh water band for the beginning of the second year is entirely absent as some of the yearlings pass down to the sea too early to show spring growth in fresh water. More commonly the band is present, varying in width with the length of time before migration takes place.

Chamberlain[1] has reported that, in Alaska, a greater number of coho pass to the sea as fry than as yearlings. The evidence available for this region indicates a condition far otherwise. Out of nearly 400 examined for the purpose of this research, only three showed indication of going to the sea as fry. These three were among those obtained at Neah bay on October 26. During the remainder of the summer the rings are formed as usual for salmon growth in the sea. The winter check follows and then the growth during the third summer, with the rings getting somewhat closer late in the fall when the fish goes up the stream to spawn.

The scales of the three that went to the salt water as fry have the first-year growth in the nature of a broad band of distant rings next to the nucleus, followed by a winter check, the whole width of the band being similar to that of the second year. Since the first year shows no fresh-water growth, the second does not either, and the third year is similar to that in other scales.

Even in the largest fish obtained there was no indication that the third year had been completed. As no one has recorded a fourth year specimen, if there are any such, they must be rare.

The analysis of the results of examining the scales of nearly 400 fish, of which 301 were in the third year, gives an admirable basis for comparing the rate of growth in the different years and in the different fish. As the fry is, on the average, 1·3 inch long when the nucleus is developed, that amount has been taken from the total length in inches in each case and the remainder divided as the scale is divided by the winter checks. Then 1·3 inch is added to the first year value to obtain the length at the end of the first year. In these scales, the growth of the fresh-water portion of the second year was calculated also.

In the whole number of fish in the third year, the least growth at the end of the first year was 2·4 inches and the greatest 4·1, with an average of 3·3. (All of the yearlings caught in the stream in early spring came between these same extremes.) The frequency curve to represent this is a fairly regular one, showing the greatest number at a length of 3·2, although nearly as many at 3·4 and 3·6. The growth for the second year varies from 7·5 to 14·4, with an average of 11·1. The greatest number came at 10·7 and 11·6. Although the base of the curve is much more spread out than in the first-year curve, the regularity is much the same. The length at the end

[1] Chamberlain, F. M. Observations on salmon and trout in Alaska. Bureau of Fisheries Document No. 627, 1907.

of the second year varies from 11·1 to 18·1, with an average of 14·3. The highest point of the curve is reached with 13·5, but there are several others nearly as high. That, in general, the yearlings that have the best start tend to keep it up, is shown by the fact that the average of the length at the end of the first year, added to the average growth in the second year, gives exactly the length at the end of the second year. For the growth in the third year, only those caught after September 15 are considered. Since there is such rapid growth during the third summer, a fair comparison could not be made of all those caught during the year. Apart from an abnormally small growth, 4·0, and an abnormally large one, 14·2, the growth for the portion of the third year varies from 6·1 to 13·5 inches, with an average of 9·7; 10·0 has the highest point on the curve, with 9·5 and 10·6 nearly approaching it. The total length at time of catching of these same third-year specimens varies from 18·0 to 31·0 inches, with an average of 24·0. The highest point on the curve is taken by 23·0, but 22·0 and 23·5 nearly equal it. As the frequency curve here is made from half-inch measurements while the others are in tenths, they are not exactly comparable. Here again the average length is equal to the sum of the average growth in the three periods, 3·3 + 11·0 + 9·7 = 24·0, and the length at the end of the three years is 3·3, 14·3, and 24·0, respectively.

The fish that went to sea as fry were not sufficiently numerous to serve as a basis for definite conclusions. The measurements were as follows:—

1.	At end of 1st year,	9·6;	2nd year,	16·4;	3rd year,	24·0
2.	"	"	11·0	"	19·4	"	25·0
3.	"	"	11·4	"	21·5	"	28·0
Average	"	"	10·7	"	19·1	"	25·7

There is no very appreciable difference between the length of the males and the females. The averages are:—

Males	—At end of 1st year,	3·3;	2nd year,	14·5;	3rd year,	24·1
Females—	"	"	3·3	"	14·2	"	24·0

There is more difference between the average lengths of those caught at Neah bay and those caught in the strait of Georgia.

Strait of Georgia	—At end of 1st year,	3·3;	2nd year,	14·1;	3rd year,	23·7
Neah Bay	—	"	"	3·6	"	15·5	"	25·6

If the difference was in the third year only, it might be accounted for partly by the fact that those from Neah bay were caught a little later in the year than the majority of those taken in the strait of Georgia, but the difference is relatively as great at the end of the second year, and is noticeable even at the end of the first year. It might be that since all of the Neah Bay specimens were from the same lot, that was an early spawned lot and they were able to keep up the initial advantage. To keep up the advantage it would be necessary to have the proper supply of food in any case and probably the food supply is better at the entrance to the strait of Fuca or somewhere in that vicinity than it is in the strait of Georgia. This is borne out in the comparison of weights, a matter which is taken up later.

The length at the time of migration varied from 2·8 to 6·6 inches, with an average of 4·5. Out of the whole number only eight were over 6·0 inches, and only twenty-two were over 5·5. The greatest number were at 4·6. Various calculations were made to see if the fish were ultimately smaller on account of the longer time spent in the fresh water at the beginning of the second year, but no constant difference could be found even in the growth for the second year. The time of hatching, and consequently the length at the end of the first year, seems to have more to do with the total growth and the second year's growth than the length of time spent in the fresh water during the second year. Possibly if a greater number were examined, some difference might be shown.

Going on the supposition that the fish that were first hatched during the season would, in general, have the greatest growth to the end of the first winter check, they were divided into three groups according to their lengths at that time. The first group included all those that were 3·0 inches or less at the end of the first winter check; the second included those that were over 3·0 inches and up to 3·5 inches; the third included those over 3·5 inches. The average growth in each case was as follows:—

1st group—At end of	2nd	year,	14·0	; when caught,		23·6
2nd "	"	"	14·1	"		23·7
3rd "	"	"	14·9	"		25·0

The difference indicates that the fish that are the largest at the end of the first year, and hence probably those that were hatched out earliest, have an advantage that tends for greater growth throughout life.

When the weight of the fish was compared with the length, it was found that there was a very definite ratio between length and weight. The youngest fish of which the weights were taken, or which enough weights were taken to make a comparison possible, were those slightly over two years old, taken in April. From these the following table was obtained:—

Length.	Weight.	
	Lb.	Oz.
14·75	1	8
15·	1	11
15·25	1	12
15·5	1	14
15·75	2	2
16·		
16·25	2	0
16·5	2	4
16·75	2	6
17·25	2	8
18·	3	0
18·5	3	4
19·	3	8
19·5	3	12

In some cases there was but one specimen of the particular length, hence some irregularity is shown. This would probably be eliminated if there were several of that length from which to take an average.

In comparing the weights of the mature fish, the males and females were taken separately, and those from Neah bay were separated from the others.

In the table which follows there is some irregularity, as in the preceding table, due to the small number of specimens for certain lengths, more particularly towards the extremes of length, but even with these figures it is possible to see the definite relation between length and weight. There is very little difference between the weight of the male and the female for the same length. What difference there is, is in favour of the female. In comparing the Nanaimo fish with those from Neah bay, the latter have what little advantage there is. In both Nanaimo and Neah bay material, the males are at the head of the list for size, taking the whole size of the individual fish.

Length.	Weight.			
	Nanaimo.		Neah Bay.	
	Male.	Female.	Male.	Female.
In.	Lbs.	Lbs.	Lbs.	Lbs.
18·5	.....	3·75	3·75	
19·	3·75	.....	.....	
19·5	4·	.....	.....	
20·	.....	4·25	.....	
20·5	4·75	.....	.....	
21·	4·625	4·75	5·5	
21·5	4·875	5·	.....	
22·	5·25	5·25	.....	
22·5	5·5	5·75	6·5	5·75
23·	5·875	6·	.....	7·5
23·5	6·375	6·375	.....	7·5
24·	6·5	6·75	7·25	8·5
24·5	6·625	7·	7·5	8·
25·	7·	7·25	8·	8·25
25·5	8·	8·	.....	10·25
26·	8·25	8·375	9·	9·25
26·5	9·	9·25	9·5	10·
27·	.....	9·5	.....	11·25
27·5	.....	10·	11·5	11·5
28·	9·75	11·5	11·5	11·75
28·5	.....	12·	12·	
29·	.....	12·75	15·	
29·5	.....	13·	13·	
30·	13·75	.....	.....	
30·5	16·5	.....	.....	
31·	13·	.....	.....	

SUMMARY.

The coho, which is mature in its third year, spends the entire first year, with but very few exceptions, in the Vancouver Island region, in the fresh water. Some of them migrate about the time the first year is completed, but others remain later, even until well on in the summer. There is no indication that any remain in fresh water to complete the second year. The scale shows a distinct winter check in the fresh water growth and another in the sea growth.

The average length is 3·3 inches at the end of the first year, 14·3 inches at the end of the second year, and 24·0 inches when caught in the fall of the third year.

There is an indication that the fish that are largest at the end of the first year become the largest mature fish. Although some of the yearlings stay in the fresh water longer than others, it was not apparent that this made any special difference in the ultimate size of the fish.

There is a definite ratio between length and weight. In the mature fish, the females weigh slightly more than the males of the same length.

In connection with artificial propagation, as large a portion as possible for the season's hatching should be procured from the early spawning fish that the fry may be larger at the end of the first year and consequently larger as mature fish.

No species of Pacific salmon should get more benefit from rearing ponds than the coho, as almost the whole of the fry remain in the fresh water for a year in any case, and very few naturally get the benefit of accelerated growth in the salt water in the first year.

From the standpoint of economy, the waste caused by early fishing can readily be appreciated when the great percentage increase in weight during the summer months of the third year is taken into account.

EXPLANATION OF PLATES.

Plate V.

Fig. 1. Coho scales in early stage of development.
" 2. Scale from a coho in the fall of the second year.
" 3. Scale from a coho in the spring of the third year.

Plate VI.

Fig. 4. Scale of mature fiish in fall of third year.
" 5. Centre of scale more highly magnified to show winter check in fresh water growth.

Plate VII.

Fig. 6. Scale of coho that migrated as fry.
" 7. Centre of previous scale more highly magnified.

Graphs.

Fig. 8. Frequency curve for first-year growth.
" 9. " " second-year growth.
" 10. " " third-year growth.
" 11. " " length at the end of the second year.
" 12. " " length of mature fish.
" 13. " " amount of growth in fresh water.

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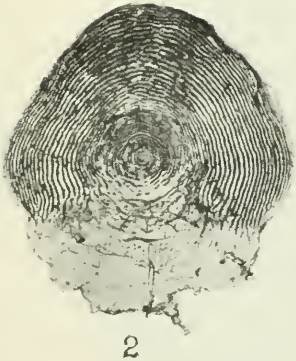

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Coho Salmon.

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Coho Salmon.

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Coho Salmon.

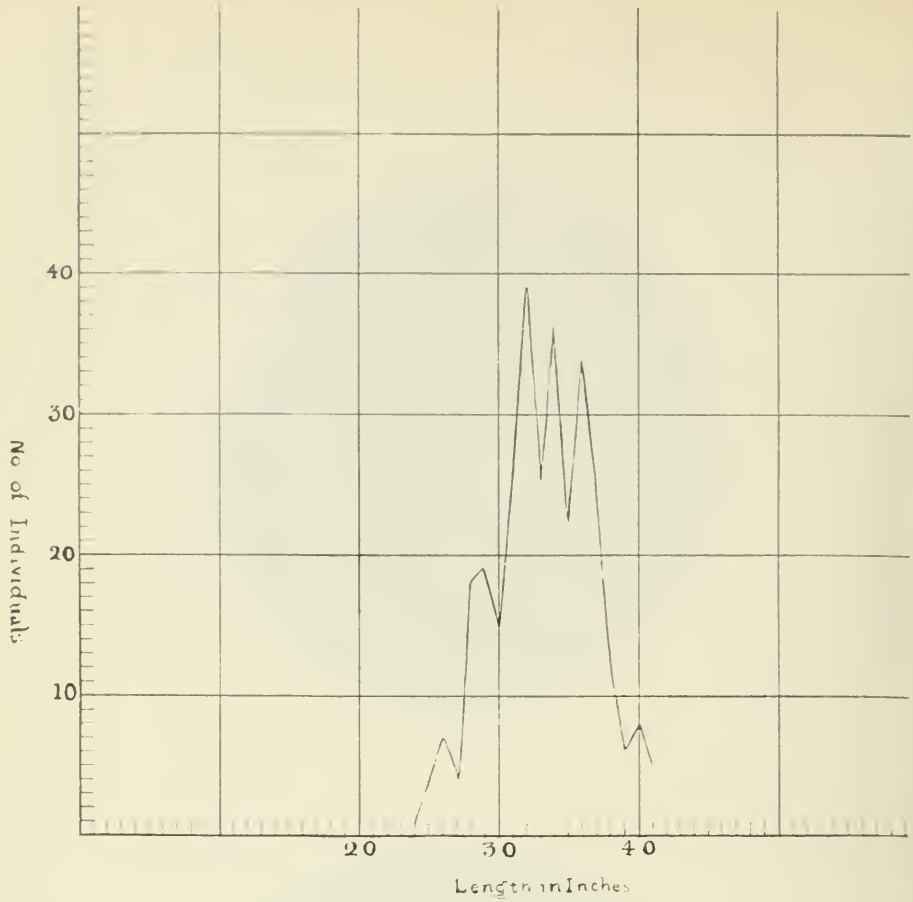

Fig. 8. Coho. Frequency curve for first-year growth.

Fig. 9. Coho. Frequency curve for second-year growth.

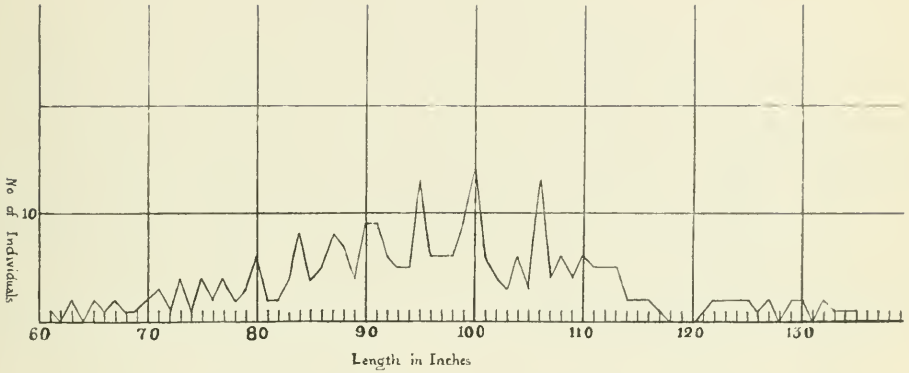

Fig. 10. Coho. Frequency curve for third-year growth.

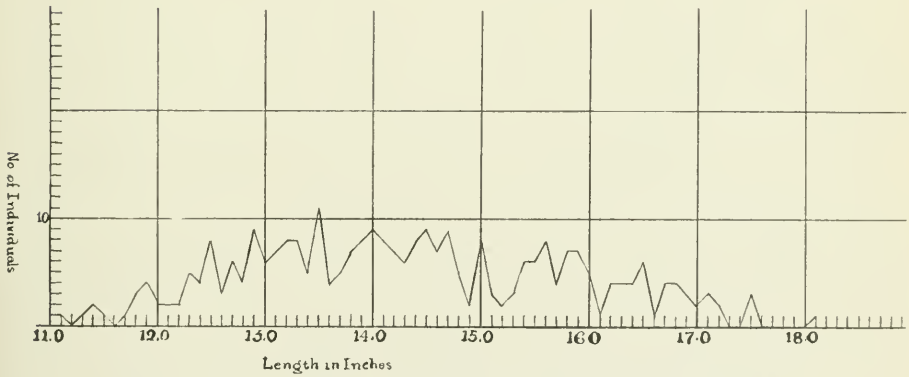

Fig. 11. Coho. Frequency curve for length at the end of the second year.

Fig. 12. Coho. Frequency curve for length of mature fish.

Fig. 13. Coho. Frequency curve for amount of growth in fresh water.

AN INVESTIGATION OF OYSTER PROPAGATION IN RICHMOND BAY, P.E.I., DURING 1915.

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At the request of the Biological Board of Canada, the writer, during August, 1915, turned aside from his oyster studies in New Jersey waters to investigate the oyster situation in Richmond bay, Prince Edward Island. A study of a region so remote from a locality hitherto familiar, gave promise of furnishing data that would help in distinguishing between local and "essential" influences in oyster propagation.

The ultimate object of these studies is the promotion of the oyster industry, both as a fishery and as oyster culture. It is an effort to conserve and to increase food resources, creditable alike in those who investigate, those who direct, and all who in any way encourage such researches.

PART I.—GENERAL PRINCIPLES OF OYSTER CONSERVATION AS APPLICABLE TO CANADA.

The oyster-bearing waters of Eastern Canada are practically confined to those bays of the gulf of St. Lawrence that indent the coast of Prince Edward Island, and the adjacent shores to the south and west, viz., Cape Breton and the province of New Brunswick. Farther south, the coast is now practically barren of living oyster beds for a thousand miles, i.e., along southwestern Nova Scotia, the bay of Fundy, and the gulf of Maine practically in its entire extent to Cape Cod. That this coast was once prolific in oysters, though more sporadically than further south, is shown by the existence of oyster reefs recently fossilized, of ancient shell-heaps and by the traditions of colonial and more recent history. It is of both practical and theoretical interest to ask, "What caused the extinction of these oyster beds?" On the true answer to this question hangs our conclusion as to the fate of the Canadian oyster industry.

One of the older[1] answers to this question assigned the cause of extinction of oyster beds along these northern coasts, to the gradual rising (geologically) of the shores, thus finally bringing the oysters so near to the surface that they were killed by wintry frosts and ice. It may be surmised that, if this process continued, the utter extinction of the Canadian oyster beds might be the ultimate outcome. It appears, however, that the coast is actually sinking; but the oyster reefs have been growing upward somewhat faster having attained a thickness of over 20 feet and have reached as near to the surface as possible. If proximity to the surface limits the growth of an oyster bed, the sinking of the coast has tended to prolong the life of the bed. It is difficult to see how either of these conditions can extinguish the life on an oyster bed, since a limit of height is ultimately attained, where there is a balance between recuperative and destructive forces. Everywhere, the tendency of oyster beds is to grow as high as possible. In the south, the oyster reefs are exposed at low tide; the oysters cannot feed while uncovered, yet the oysters are not starved out. But if the coast should rise, the living surface of such reefs would be killed, while the oysters at the edges would gradually spread into deeper water. On the other hand, the sinking of the bottom would be highly favourable to oyster growth, provided that temperature and salinity conditions

1 Ingersoll's Report on the Oyster Industry, 1882, Tenth Census of U. S., p. 35.

were not utterly transformed so as to pass beyond favourable limits. If the northern coast has been sinking, it is possible that this has permitted cold arctic currents to enter some of the bays, or to influence the adjacent water that enters on the tides, so that the temperature necessary for summer propagation (68° F.) is not attained. The extensive shallow flats of Richmond bay and other noted oyster-producing bays of the gulf of St. Lawrence offer the conditions favourable to the warming of the water to the point needed for propagation.

As regards salinity, we know that oysters flourish best when situated where there is a tidal increase and decrease in the salinity of the water; but oysters do grow in waters of very different degrees of saltness, and also in places where there is remarkable uniformity in density. While too much emphasis has been laid on this factor, yet it remains highly desirable that further study be made of the relation of salinity to oyster feeding; but temperature, oxygen, and currents are of much greater significance in oyster growth and propagation.

A study of the temperature of the waters where oysters are now extinct would discover the cause of their extinction. From the tables of temperature[1] determined by Professor Copeland for Passamaquoddy bay, it is evident that oysters can not propagate in those waters; but there is less evidence that oysters flourished there in early times than for some of the bays of Maine. Even in Prince Edward Island there are fossil oyster beds in the vicinity of living beds; thus we conclude that there must be also other causes for the extinction of oyster life.

In respect to frost, it is remarkable to what extent oysters survive exposure to freezing, when partially imbedded in mud and thawed out gradually. It is asserted that where the water is so shallow that the ice rests on the bottom, at low tide, the oysters are killed by the pressure, unless they lie on a soft bottom, where, however, they are in danger of being buried. On the other hand, a heavy fall of snow before ice forms, clogs up shallow waters and kills oysters and even clams, according to the testimony of intelligent and experienced oyster planters. The effect of melting ice, and especially snow, upon animal life has yet to be studied in a scientific manner.

We are confronted with two opposing influences. Shallow waters, especially when so free from grass as to be swept by currents, favour oyster propagation in the summer, but are most unfavourable to oyster life in winter. Just here is a situation that can be advantageously handled by the art of man, so as to greatly improve upon nature; for the young oysters produced on the flats can be moved to deeper water on the approach of winter. This is never done under the conditions of a free or public fishery. It is in the interest of conservation that oyster farming be introduced to supplement natural production. The foremost difficulty encountered in this connection is not our inexperience and our ignorance of the proper way to raise oysters, so much as the opposition of those who believe in harvesting what nature produces without contributing the labour of cultivation. It takes many years of education and the observation of the increased harvest resulting from oyster farming, as well as the annually decreasing product secured by free fishing, to teach the oyster fishermen that it is to their interest as well as that of the general public, to promote scientific oyster culture.

Man has been the oyster's greatest enemy; although, if he will use remedial measures, he can more than counteract the destruction. It is supposed that the disappearance in recent historic times of some of the natural oyster beds is due in large degree to the increased amount of sediment carried into bays by rivers, on which saw-mills have been erected, or whose drainage areas have been cleared and ploughed. Sawdust and sand are the most injurious of the forms of silt; light mud is more readily handled by the ciliary feeding apparatus of the oyster; yet when silt is present as a nearly continuous suspension in the tidal currents, it seriously

1 Contributions to Canadian Biology 1906-10, p. 286, etc.

interferes with feeding, causing ultimate starvation. Silt that settles may be abundant enough to bury oysters; but even an exceedingly thin layer deposited on the objects used as cultch by the spat, will prevent fixation and therefore to the same degree prevent propagation. Assuming the spat to have secured fixation, it takes proportionately less silt to smother these delicate tiny oysters, than will bury the adults.

The main cause of the destruction of natural oyster beds in historic times has been improper and careless fishing. The history of the oyster industry everywhere has shown that when oyster fishing has been pursued under no other regulations than those born of the wishes of the fishermen themselves, the natural beds were rapidly depleted, and finally exterminated, unless remedial measures were undertaken. Accordingly there have arisen many laws regulating this fishery, that seem strange to those engaged in private farming. For example, oysters may not be taken from natural beds except during the "open season." The "close season," during summer, varies greatly in its limits according to locality, but usually includes May, June, July, and August. Fishing must be confined to the hours between sunrise and sunset. Oysters may be taken with tongs but not with rakes; and dredges may not be used, nor may oysters be taken through the ice. Oysters may not be sold under three inches in length, and those smaller than this must be returned to the beds, etc. These laws are enforced by police methods; and fines and penalties are imposed for a breach of their provisions.

Under private culture each farmer tries to promote his own ultimate best interests, and thus also the public welfare; but those who share in a public fishery consider only their own immediate self-interest. They sacrifice their own future, as well as the public welfare. The oyster laws are a result of an honest and fairly intelligent endeavour to conserve the natural oyster resources, and they undoubtedly partly succeed in effecting their object. It will be instructive to consider for a while the question of the depletion of natural beds and their conservation.

AGENCIES DESTRUCTIVE TO OYSTERS.

It is a fundamental biological principle that the agencies that destroy the individuals of any living species nearly balance the natural rate of increase; that after a species has established itself in any locality the number of its population remains nearly the same from year to year, though the balance between birth-rate and death-rate will fluctuate slightly up and down as one or the other set of factors increases or decreases. For instance, if food becomes temporarily more abundant, there is an increase in population, while a decrease in food results in a reduction of individuals, through starvation. So likewise there will be fluctuation due to the prevalence of various enemies and epidemics.

Under this law there must be as many deaths as births; or, vice versa, the number of births must be sufficient to make good the loss by death. Therefore, we can judge of the extent of the destructive forces by simply noting the fecundity of a species. The oyster is one of the most prolific of all creatures. A single large "spawner" has been estimated to produce annually sixty million eggs, but we must remember that half of the oysters are males, and that there are many small oysters. Neglecting the very small "seed" oysters, we may conservatively say that an oyster bed produces from ten to fifteen million young for each adult present; so that, if all lived and there were no further propagation, an oyster bed would be ten million times larger in five years. In spite of this astounding conclusion, however, the oyster beds are being depleted simply from the annual removal of a few hundreds or thousands of barrels. This should be the most convincing proof that the natural foes of oysters are extraordinarily formidable. Then why may we not believe that the destruction caused by man is insignificant in comparison, and so need not be considered to have

any practical effect? Because "it is the last straw that breaks the camel's back," and because all natural species, including oysters, exist under a balance. We have only to refer to the extinction of the American bison, which existed in such huge herds on our plains; or still better, the extinction of the wild pigeon, whose flocks in migration used to darken the skies of nearly a continent for days. It is absurd to believe that this species was hunted until the last pair was shot. The destruction by the hunter, great as it was in the case of the bison, or of the pigeon, was probably slight in comparison with all the other natural enemies, but the latter, suddenly supplemented by man, finally turned the balance, and completed the work after the hunting ceased. Let us consider some of the destructive agencies operating against oysters.

THE MEANING OF FECUNDITY.

When the oyster ejects its millions of eggs into the water, these at first tend to sink to the bottom, which they would reach in ten minutes in calm water. In order that the eggs may develop, they must be fertilized by the male spawn or sperms. The sperms must be sufficiently abundant to enable an average of three hundred to cling to each egg during the ten minutes the egg is afloat. They must have been recently ejected from the male oyster or they will have died. The male oyster must have been ready to spawn at nearly the same time as the female, and must have lain sufficiently near, so that the water flowing over him shall reach the female by the time she emits her spawn. This is favoured by the fact that the process of spawning usually takes several hours or even days. We need to ascertain a good deal more than we know now before we can make precise statements, but we know that even where water is in such favourable agitation that the eggs are prevented from sinking to the bottom, they must be fertilized within a quarter of an hour to undergo normal development. This is the first reason for the enormous production of eggs. In spite of losses, vast numbers of developing young are started. As many as ten thousand newly hatched oyster fry or larvæ have been counted in a single bucketful of water dipped up over an oyster bed. But this signifies that there are other chances yet to be taken.

COMPETITION WITH PLANKTON ENEMIES.

After hatching, which occurs in from five to eight hours, the young oyster swims so weakly that the feeblest current carries it hither and thither. Indeed, all it effects by swimming, is to reach the surface and then to dive again, and so keep going up and down, requiring an hour to swim a distance of a few feet. But the oyster fry find the water is crowded with minute enemies, such as Copepods (water fleas), the "veligers" if the many snails that cover the bottom, and a vast number of the larvæ of bivalves of various species, all capturing everything within reach small enough to enter their hungry maws. These enemies eat the young oysters, and the messmates consume their food. For several weeks the young oyster has to run this gauntlet and obtain sufficient food to effect an increase in volume of a hundredfold before it attains the spat stage in its development. Great as has been the ninefold decimation, yet so many survive that, if clean oyster shells be planted at the time of spatting, as many as a hundred or more spat may be caught upon a single shell almost anywhere upon or near an oyster bed.

LOSS BY TIDES.

This great survival is the more remarkable when we reflect that twice daily a vast body of water runs over the oyster bed out to sea, carrying myriads of larvæ, and only a part of this water returns. The astonishing fecundity of the parent oysters sufficiently meets this loss also. But the struggle for life has not yet ended.

THE QUEST FOR CULTCH.

Unless man has placed clean cultch in the water, nature provides only the old shells of dead oysters, mostly buried in mud, or the outsides of the living oysters. These and other exposed shells are more or less covered with slime, silt, and mossy growths of both animal and vegetable nature. Millions of other larvæ also needing cultch, such as "deckers," "jingles," "barnacles," etc., have pre-empted the best places and are busy feeding on every living thing they can swallow. Worst of all, through the open valves of the older oysters and of mussels, clams, etc., currents of water flow, bearing all sorts of plankton, presumably also oyster fry, to be used as food. How small a chance these fry have of escaping and finding a foothold! If they cannot fixate they are doomed to destruction. But vast numbers do find a foothold and do succeed in growing, and crowding each other, and competing with all the other oysters for food. In this struggle the survivors ultimately overgrow and smother the previous generations. Great as is the loss through crowding, it is exceeded by or anticipated by an earlier destruction, sometimes including all the spat on most of the shells.

THE ENEMIES OF GROWING OYSTERS.

The numerous little Nassa snails are constantly exploring the surfaces of shells and scraping off all the newly set spat. Those that escape may reach the size of a fingernail, and then, along comes a boring snail and drills a hole through them, or a crab nips them off, or mud stirred up by storm smothers billions in a day, or the frosts of winter kill them. Later come the starfishes opening the oysters by their patient pull, or bottom fishes may crush them in their paved jaws and throats. Last of all, man comes with tongs, and rakes, and dredges, and takes the few survivors. Thus ends this eventful history. The fisherman then wonders why the Creator doesn't supply new oysters the next season to replace those taken: usually the best answer given to this question is to bow in meek submission to Providence.

CONDITIONS FOR PROPAGATION.

A little insight into oyster biology should enable any one to see that the production of oysters depends on the co-operation of four conditions, viz: (1) suitable cultch, (2) in waters stocked with a sufficient number of spawning oysters, (3) lying close enough to ensure fertilization of the eggs, (4) on a bed sufficiently extensive to fill the water, over a considerable area, with oyster plankton to such a degree as to overbalance the larval mortality.

When the large oysters, which furnish the bulk of the spawn, are yearly removed, as well as the cultch to which they are attached (including the young oysters attached either to them or to the cultch), then the bed is robbed in three-fold degree, viz., the cultch is decreased, the large spawners become fewer, and the "rising generations" are many times decimated. If the production of spawn is reduced to half, and the available cultch to half, then the production is reduced to a quarter.

When shells, hitherto buried, are uncovered by working on a bed, they become available as cultch, but this advantage is greatly reduced through the fact that much silt is scattered upon the shells by the very operation which exposed them. In oyster fishing, ultimately all the cultch utilized by spat will have been removed, and then we have remaining simply an oyster reef covered by a layer of mud, upon which not an oyster can be produced, even though a current rich in oyster plankton, derived elsewhere, should flow over it at a time when the fry are matured to the sessile stage. Clam production is much simpler, for no cultch is needed.

STEPS IN CONSERVATION.

One of the earliest steps taken in most instances towards the conservation of natural oyster beds has been the enactment of a "cull law." This compels the fisherman to sort his catch on the bed, throwing back the unmarketable material, consisting of shells and small oysters. The main advantage secured is the conservation of a percentage of the seed oysters. The spat attached to the large oysters cannot be removed, while the shells which are returned are largely silted up when spatting time comes. In fact, these shells, unless newly dug out of the mud, require to weather for weeks, exposed to rain, snow, sun, and air before they are suitable for spat collecting.

It is evident that no fisherman would thus care for the shells, unless compelled by law; yet it seems to the writer that it would be a practically enforceable provision, were it embodied in the cull law, particularly if a market for these shells could be secured. Sometimes the State has purchased cultch and placed it on natural beds; but this practice was abandoned for two reasons: the cost of the work was greater than under private enterprise; and the Government felt it was making a gift to a special class. Where oyster farming prevails, the planters would buy this cultch, particularly in those regions, where shells are scarce because no shucking operations are carried on. Now that oyster culture is under way in Canada, the securing of cultch is a matter of great concern. It appears that the most available supply must come from a sorting of the so-called "mussel-mud" dug out of dead oyster reefs. The firmest of these shells, which are often of large size, when washed clean, are good collectors. But no cultch should be planted until spatting has just begun. Happily, scientific oyster research has in recent years enabled us to closely determine this date; but important matters are still to be cleared up.

THE RATE OF PRODUCTION OF A BED.

The legal restrictions imposed on the fishermen have the object of conserving the natural oyster production. The cull law helps this in a measure. Another prominent legal provision is the "close season" during summer, when no oysters are permitted to be taken, because it is believed that the spawning oysters should not be disturbed, nor the cultch be littered with silt by fishing operations. This "close season" has been lengthened from time to time, at both ends, by shortening the "open season," in order to reduce the number of oysters taken, it being believed that the bed is unable to supply oysters in quantity equal to the demand. It is doubtful if this provision becomes effective unless made so drastic as to practically deprive the fisherman of his means of living.

When these enactments fail, more drastic measures are advocated, such as the closing of the oyster beds for a number of years, until nature has had time to restore them. But such legislation is founded on a failure to grasp a fundamental principle, to wit, a depleted oyster bed will be restored at a rate dependent on the percentage of available cultch multiplied into the available spat. Assuming that there are still enough oysters remaining to produce a fair abundance of spat, and that there are plantings of cultch on the bed at the proper times, then it will take five years for the bed to reach its acme. Then if this bed were henceforth left undisturbed by man, the forces of destruction and of natural production would just balance. On the other hand, suppose there was no planting of cultch, then, under nature, a depleted bed would take an indefinitely longer time to reach its original condition. In any event, after such a bed has reached the point of highest production, a survey of its extent and examination of an average square yard or rod, will enable one to calculate just how many bushels of oysters are present. Knowing then the number of bushels that can be taken in the open season, it can easily be reckoned how many years will elapse before the bed again will be reduced to a point where the fishermen can not secure their average catch. It should be evident that under artificial culture the

ranks of the oysters are restored by fresh cultch, under whatever rate the adults are removed, so long as the remaining oysters furnish sufficient spat. In case a 5 year-old oyster is marketed, then, without culture, if so large a proportion as a fifth of the product on the bed be taken each year, nature would not be able to replace this completely, for reasons already explained. Yet the demand on the restored bed might be so great that half of the oysters would be removed one year, two-thirds of the remainder the next, plus any natural increase, and so on. Thus the old story of gradual depletion would be repeated. For the first two years after a bed is opened, the production would be double or treble what it was before the bed was closed, but it soon drops back to the small figures. Now, calculating that there is no harvesting for the five years during which the bed has been closed, and suppose that in five years it must be closed again, we see that in the course of ten years the average yearly product is equal to the minimum harvest. There is no gain in production, and the only advantage is the saving of the oyster bed—a bed greatly depleted and not yielding its full capacity. The fact is, that a natural bed yields the highest food production when all the oysters above a certain size are removed annually, and an equivalent of cultch is added. But such a bed gives the highest possible yield of oysters if it is used solely as a propagating bed, the seed being sold to oyster planters to mature for market on ground that could not be used for propagation. This is an important matter, and we need to go into it from the point of view of scientific oyster culture.

Efficient Use of Oyster Ground.

Suitable localities for propagation and growth may in general be occupied by (1) natural beds, (2) under artificial oyster culture a certain additional area used for propagation and growth, and (3) an additional area for growth only, and (4) in a still further area, oysters might live for a while without growth. Area No. 4 is useful for storage only; Nos. 1 and 2 are so nearly alike, biologically, that fishermen have contended, sometimes successfully, that they are alike legally, so that farmers who had made such areas productive, were robbed of the fruits of their labour. When we realize that area No. 2 would be barren but for the labour of man, we must justly conclude that from a legal point of view they are radically different from natural beds, however much they may resemble them biologically.

Assuming that a farmer owns only areas like No. 3, then he cannot produce his own oyster seed, and must secure it in various degrees of development, from either the fishermen who harvest No. 1 or from farmers who own areas No. 2. His problem becomes this: Which ventures bring the best returns, the purchase and cultivation of oyster seed requiring one, or two, or three, or four years, to mature for market? If there is a law preventing the fishermen from removing oysters under marketable size from natural beds, then the farmer of No. 3 is dependent on what he can secure from the cultivators of No. 2.

Let us next consider the culture of ground No. 2. As this is suitable for propagation, the owner can catch his own seed and is thus independent of the public beds. His ground is also suitable for growth, and so his problem is to find out which pays better, either to keep the seed on the ground where caught, until it is marketable, or to sell it at the age of one, two, or three, or four years, to owners of No. 3. In the former case, his farm will resemble a public bed, biologically speaking, but he can handle the situation to his own best interests, with his best judgment, and not under the restrictions pertaining to public fishing. He will remove each year the right number of marketable oysters, replacing them at the proper time by fresh cultch. He may do better: he may divide his ground into five plots—*a, b, c, d, e.* Let *a* represent the plot that catches the best set of spat. Each year, for four years, he will remove all the spat from *a* and plant them successively upon *b, c, d, e,* respectively, reshelling *a* at the proper times. He gets no pecuniary returns until the fifth

year, when he markets the entire crop on *b*. In case there has been annual spatting on this ground, he culls off the immature oysters and places them, not on *c* but on the plots where oysters of similar ages are found. Thus *c* is cleared to receive the next crop that is raised on *a*.

From thence on, he has an annual income, harvesting one of his plots yearly and replanting from his seed-raising ground.

We have gone into this detail with a purpose. This method of farming is the highest form of specialization, and should give the highest possible returns. Now please note well: each year the farmer harvests only one-fifth of his farm, and one-fifth of his growing crops. If he kept the entire farm like a natural bed, taking off an annual crop from the whole area, it is evident he could not do so well because all the generations would be intermixed and competing on those parts where there was most propagation, and on other parts less favourably situated, the propagation would not be at the maximum rate, but at a rate that would greatly reduce the annual product of marketable oysters. At the very best, he could not harvest as much as a fifth of his crop, and he would have to use better methods than those now in use on the natural beds, to keep his oyster bed from depletion.

Oyster farming resembles truck gardening in some respects, but differs in needing several years to mature the crop. On a mixed bed, the best returns come from removing annually as many oysters as can be spared, and not by introducing a system of open and close seasons. It is evident that what is good treatment for a mixed bed under private ownership, will be best for a similar bed under public ownership. There can be but one conclusion here, viz., that if natural beds are to be conserved, they should be under the supervision of an expert, and should receive plantings of cultch at the proper times. The expert must determine just how many oysters may be annually removed.

THE FATE OF DEPLETED BEDS.

Under a system of private oyster culture, it is necessary for planters who have little or no propagating ground to obtain their seed from natural beds. This leads to an abrogation of the prohibitions against taking immature oysters. Then the fishermen will market their catch at home, for planting in waters more or less adjacent to the public beds. The inevitable result will be to render the latter as barren as possible. When both cultch and oysters are gone, the bed is extinguished. But in this case, if cultch be placed on the bed it is as productive as ever, up to the limit of the supply of cultch. This is due to the fact that the oysters which have been removed are still growing and spawning in neighbouring waters, so that a supply of spat is brought to the old grounds. The fishermen will harvest this crop of spat, and sell to the planter, or plant it themselves on their own farms; and history shows they will as zealously guard rights to such beds as they formerly did where they were confined to harvesting mature oysters only. As no one puts cultch on such beds, it is plain that however much spat may be present in the water derived from the private grounds, the beds will last only as long as the cultch naturally present will last, and that the production will be only as much as the available percentage of cultch present. Inevitably such beds become "barren" bottoms and open to leasing. There can be only one way of escape, and that is for the fishermen to form a co-operative society to work the public beds under a mutual agreement.

But this, of course, cannot be done, because others of the public than the fishermen, are also owners. Fishermen have been offered first chance in taking out leases of what they considered to be public ground, and have refused because they know that if once this right is granted, all or nearly all of the public grounds will ultimately come into the ownership of capitalists. So here we have a special phase of the old struggle between capital and labour. It is not our purpose to more than touch on the skirts of the matter that is political rather than biological, but still is vitally involved in any scheme of oyster conservation.

THE LEGAL SIDE.

Experience has shown but one successful way of developing oyster resources, and that is the encouragement of oyster farming. The introduction of oyster culture has always met with opposition from the public fishermen, and such opposition has had a degree of justification. Usually it has been so mingled with prejudice and short-sightedness, that the sympathy of the general public has been estranged. Theoretically, the best interests of the whole public require that the oyster industry should be conducted wholly by methods that have proved successful in private farming—letting private judgment manage business operations, rather than a code of regulations. Practically, however, the best course to follow is to recognize the existence of public beds, and public fishing rights. Such rights and beds should be carefully defined, and the boundaries of public beds marked in a clear and simple manner, even though some barren bottoms should be included. Only by extreme or radical measures can natural oyster beds be preserved. But where oyster culture is successful there is less necessity for conserving such beds. The public oystermen have endured a surprising amount of restrictive legislation, supposed to be as much for their interest as that of the public. Under our larger view of the oyster question, the fishermen might be given more freedom and influence in shaping the regulations for the use of the public beds. Restrictions should primarily have in view the protection and encouragement of oyster culture, in which the real public interests inheres. Efforts should be made to secure impartial justice for all. A mutual obligation rests on both fishermen and farmers, to respect each others' rights. Those who wish to frame the wisest laws, seeking for harmonious co-operation between these conflicting interests, are advised to study the history of oyster legislation in as many states and countries as possible. There will be found a variety in details, resting on local conditions, and a similarity in general principles, resting on biological grounds.

THE DECLINE IN THE CANADIAN OYSTER PRODUCTION.

That oyster production in Canada, and particularly in Prince Edward Island, has steadily been decreasing is evident from statistics. See "Table showing the aggregate quantities of oysters caught in the Dominion since 1876, compiled from annual reports of the Department of Fisheries," given on page 47 in the report of the Dominion Shellfish Fishery Commission, 1912-13. In this table we note a curious back-and-forth fluctuation from year to year; but if the entire series of years be divided into five-year periods, and the annual product be averaged for each five-year period, or semidecade, the annual catch in barrels is as follows:—

Periods.	Years.	New Brunswick.	Nova Scotia.	Prince Edward Island.	Proportion for P.E.I. Per cent of whole.
(1)	1876–1880	9,724	1,172	17,020	60
(2)	1881–1885	12,765	1,652	34,644	70
(3)	1886–1890	20,426	2,049	36,379	60
(4)	1891–1895	17,434	3,327	30,622	60
(5)	1896–1900	18,740	2,150	22,735	50
(6)	1901–1905	12,854	1,517	19,860	60
(7)	1906–1910	16,564	1,597	10,583*	30
	1911–1912	15,436	2,090	8,835	35

* For 1907-8, the quantity credited to Prince Edward Island was only 1,672 barrels. Leaving that year out, the average for the remaining four years becomes 12,811 barrels, which is 40 per cent of the average total credited to the Dominion for the same period.

The third period shows a maximum of oyster production in the Dominion, and also in the two main oyster-producing provinces. The decline began in the middle of the fourth period, mainly in Prince Edward Island, which led in production up to 1906, when it sank to the level of New Brunswick. Thenceforth it fell behind until its production reached only half of the province of New Brunswick. The decline in the latter province from the maximum has been little more than 20 per cent with 80 per cent decline in the island province. This difference in the rate of depletion has been explained as due to two main influences: the greater demand for the island product and the discovery of new beds in New Brunswick, when several of the older beds were fished out.

It is interesting to read the summary of the reports of various inspectors and experts from 1868 onward, given in Ernest Kemp's "The Oyster Fisheries of Canada," 1899. These reports sound a uniform warning that the Canadian oyster industry was in danger of complete destruction unless proper measures were taken to conserve it. The decline in the industry has not been so keenly realized by the fishermen, because the price of oysters has increased proportionately. This fact augurs seriously for this industry. Oysters, even when cheap, are considered somewhat of a luxury, and a rise in price must tend to exclude them more and more from the menus of the middle classes; while at the same time the importation of foreign oysters must increase. The Canadian fisherman has relied for the protection of his interests on the superior quality of his oysters; but this superiority is threatened in two ways: first, it has become necessary to market oysters from beds that do not produce them of the highest quality; and second, by the attempt of planters to grow imported seed in Canadian waters, in the hope that they will attain the citizenship at least, or, if possible, attain the quality of the home product. This "American" seed is sometimes of inferior quality and, although it certainly improves under cultivation in more southern waters, it lies dormant for a long time, without growth, when transplanted to the northern beds. According to the claims of the fishermen, with whose product these oysters compete, when sold, it injures their market by giving the oysters from their locality a bad reputation.

The cultivation of foreign oysters in Canadian waters is of considerable scientific as well as practical interest. From the slight evidence at hand, we conclude it will take more than a year to acclimate Connecticut seed in Canada, before growth begins. It will take a correspondingly longer time to impress the Canadian quality upon these oysters after growth begins. It will, therefore, be wise to import this seed as young as possible to secure the best results. It is still somewhat doubtful whether the Canadian oyster may not be a distinct variety, breeding true to its kind. The Canadian oyster spat, at the time of fixation to cultch, is a fourth larger than the spat in the corresponding stage of development in New Jersey waters. Whether this difference is due to environment or is inherent, remains to be settled by experimental observations. Oysters usually show improved quality in colder waters, due largely to the shortness of the spawning season. While it is interesting to note the outcome of attempts to cultivate "American" oysters in Canada, it will be wisest for the Canadian planter to do all he can to promote the production of the native seed.

PART II.—OYSTER PROPAGATION SURVEY OF RICHMOND BAY, P.E.I.

In presenting the following synopsis of observations made in Richmond bay we wish to call attention to the fact that there are many points in the life and habits of oysters and their young that are yet unknown and which should be known in order to make the proper applications to economic problems. Aiming to make our investigations throw light upon these other matters, at the same time that we attempt to be as practical as possible, the work of surveying so extensive an area as that of Richmond bay by the methods developed by our previous experience, introduces much complexity. There were so many things that should receive simultaneous attention that much was

crowded out or missed, which demands a more specialized investigation. Lacking previous familiarity with this considerable expanse of water, it seemed best to get as broad a view as possible of the conditions, from which departure could be made in any special direction, as the findings might suggest.

DESCRIPTION OF METHODS.

The most important procedure is the determination of the oyster "plankton," i.e., the young "fry" in the water, which furnishes the "setting" of "spat." This study was prosecuted by the use of a net made from the finest bolting silk. Counting out Sundays and stormy days, plankton studies were made on eighteen days, at an average rate of fifteen per day and a maximum of more than twice that figure. The net gathers a vast number of many kinds of larvæ—bivalves, univalves, water fleas, etc., and as it is necessary to sort the oyster larvæ out from each sample, under a microscope, and count and measure them, the work is nervously strenuous and time-consuming.

Our procedure consisted in straining approximately known quantities of water through the plankton net, and then to "wash" the "catches" into a series of wide-mouthed bottles containing sufficient formalin to kill the larvæ, so that they would all settle to the bottom. After a number of such samples were collected, the boat was run into the nearest quiet harbour, where the sediment in the bottles was examined in partial lots, until the entire amount in each bottle had been sorted by the methods developed in our previous researches.

The samples were collected in the following ways:—

(1) Dipping water in the net while the boat was under full headway, the average rate was two samples per mile, each of 20 quarts of water.

(2) Dragging the net back and forth by hand a definite distance and number of times while the boat was stopped. This is called "swinging" the net.

(3) Towing a definite length of time, say a minute under reduced speed.

(4) By means of a cylinder, devised with valves for this purpose, into which the net was fitted, we secured samples at definite depths, or determined the vertical distribution of the fry by lifting the net through a fixed distance, a definite number of times.

We thus endeavoured to make our determinations quantitative as well as qualitative in character. The point from which we set out each morning, and to which we returned each evening was Malpeque wharf. We were farthest from home each day at noon, and samples were taken as opportunity offered on the return route as well. We are desirous at this point of the narrative to express our thanks and hearty appreciation for the kindly courtesies extended by Prof. A. D. Robertson, the use of whose boats and other equipment we shared, doubtless at times at a sacrifice of his convenience, at least, he being engaged in studying oyster growth.

LOCALITIES EXAMINED.

For purposes of location and orientation, the following descripton of Richmond bay is given: This bay is a considerable southward indentation from the gulf of St. Lawrence, of the north shore of Prince Edward Island. The coast at this point trends northwest, thus the western shore of the bay is one and a half times longer than its eastern. A sandbar 10 miles long separates the bay from the gulf, and limits its outlet to a channel a mile wide situated at the northern terminus (cape Aylesbury) of the eastern shore. Each shore has three considerable indentations. On the east, most northerly is Darnley basin, next comes Shipyard basin, and at the head of the bay is Chichester cove. On the west, situated correspondingly are Bideford river, Grand river, and Bentinck cove.

Confining one's attention to the channel or deeper parts of the bay, the tide entering north of cape Aylesbury sends a small branch southward into Darnley basin. The main portion flows west at the southern end of the bar between Royalty point and "Fish" island. Three miles west from Aylesbury the tide strikes Horseshoe shoals and spreads thence in three directions: (1) northwestward for 4 miles to enter the mouth of Bideford river, between Hog island and Bird island on the east and Gilles point on the west; (2) the southwestward tide flows 2 miles to "Ram" island shoals where it bends south and southeast around Ram island on a 6 mile course into "March water," and eastward into Shipyard basin, to Malpeque wharf; (3) the central portion of the tide on Horseshoe shoals continues westward for 3½ miles to North Bunbury shoals. Part of it continues on for 5 miles farther, passing north of Charles point to reach Grand river. The main portion of the tide, 3 miles wide, turns south between Charles point and Bunbury island. Four miles to the south it runs between Beech point on the east and Bentinck point on the west, and enters the head of the bay, where it ends in three divisions, viz., Bentinck cove on the west, Chichester cove on the east, and Webber cove, with Barbara Weit river on the south, 8 miles from North Bunbury shoals.

Apart from its estuaries, Richmond bay may be conveniently divided into: (1) an outer section or Lower bay, lying east of a line drawn from Ram island northward to Hog island, but this line should curve westward far enough at its middle, to include all of Horseshoe shoals; (2) an inner section or "Upper bay," lying south of a line drawn due west from Beech point to the cliffs north of Bentinck point; (3) a middle section, between the other two, that we may designate as the "Central portion." The southern half of this section is split into two by Curtain Islands shoals, which extend nearly 4 miles northwestward from Beech point. Bunbury island, situated near the northern extremity of these shoals, marks closely the geographical centre of the bay. We shall confine the term "Central bay" to the portion north of Bunbury. The part west of the shoals, from its shape may be called the "quadrangle," that to the east is "March water." The Upper bay empties mainly into the "quadrangle," but some water flows over the shoals into March water, which in turn also partly spills over Ram Island shoals into the Lower bay. The "Central bay" receives the Bideford from the north, Grand river from the west, the quadrangle from the south, and March water from the southeast, between Bunbury and Ram islands. We shall consider successively the data secured from a study of the different localities. Most attention was given Grand river and March water; the data from other localities are fragmentary.

BIDEFORD RIVER.

This river from the head of navigation to Gilles point is 6 miles long. Trout river enters it in the south, and a strait called the narrows, lying between Lennox island and the mainland, enters from the north. The lower part of the river is bounded on the northeast by Lennox and Bird islands, and it empties into the Central bay in conjunction with the waters of a large shallow lagoon that lies east of Lennox and Bird islands and west of the sandbar. The southern end of this lagoon is bounded by Hog island, near which are oyster beds that owe their existence to the influence of the adjacent flats, in warming the ebb tides.

At the northern end of the widest part of the Narrows, on August 6, a few oyster fry were found in 20 quarts of water of 1,021 density, 70° F., the largest being 160 microns[1] in diameter.

At head of navigation in Trout river, August 17, during rain, high water was 1015 at 72° F. Vertical sampling of different parts of the river yielded oyster fry of 160 microns to 400 microns, at the rate of one per 15 to 60 feet.

[1] Twenty-five thousand microns equal one inch. Oyster fry are first seen at 60 microns and "set" as spat when they are from 320 to 400 microns in diameter.

At the head of Upper Bideford, August 6, low water was 1019·5 at 74° F. Four samplings, each of 20 quarts, along its course to Trout river, yielded seven fry of 160 microns, and a few at 100.

Between Trout river and the Narrows, August 6, in water of 1019.5 at 72° F., large fry were present at the rate of one per 30 quarts. August 17, fry were found of sizes 120, 180 to 260, 360 to 380 microns, at the rate of one per 60 feet vertical, which means that in water 30 feet deep, ten hauls from bottom to top would yield five large fry.

In the section off south end of Lennox island, August 6, water was 1020 at 70° F., and only one large fry and a few small ones appeared. On August 17, 1019 at 70° F., three samples gave twelve fry from 160 to 400 microns, most being 240 microns.

In the section along Bird island, August 6, only few fry present, and less than 120 microns in size. On August 17, water sample 1020 at 70° F., gave one fry of 200 microns.

Central bay, adjacent to Bideford river, August 6, 1021 at 70° F., fry less than 110 microns. August 17, near low point, one fry 180 microns, one 240 microns.

GRAND RIVER.

From the bridge to the ferry is a distance of 4 miles, and from the ferry to Charles point is 3 miles. The latter section, 2 miles wide, is more a cove than a river. From the bridge to Southwest creek is nearly a mile, thence to Cross creek nearly two, and thence to the ferry is a mile and a half. About half a mile below the ferry at Black point the river empties into its cove.

Section below the bridge, August 6, flow, 1018 at 72 F.; August 14, ebb, 1018·5 at 74° F. Vertical samples gave one fry per 20 feet, sizes 120, 160, 320, 360 microns nearly equally abundant. August 20, flow, successively 1018 at 66 F. and 68 F., 1017 at 67 F., and farthest from bridge 1019 at 68 F.; very little but sand in four samples. Samples on higher water gave one per 40 feet vertical, one per 10 quarts, four per minute towing, 80 to 200 microns. August 25, strong ebb, one fry per 6 feet of towing, from 120 to 320 microns, majority 240 microns. Towing one minute with large No. 12 net, gave seventy fry, 160 to 340 microns, with maxima at 240 and 320 microns; small fry escape through this net.

Section below Southwest creek, August 14, 1019·5 at 71° F., fry one per 2 feet vertical; farther down, one per 6 feet, ranging from 200 microns to smaller, most are below 160 mu.[1] Half of oysters dredged are still filled with spawn. August 20, 1018.5 at 68 F., early flood, few fry; but when near high, 1019·5 at 68 F., fry are abundant, one per 6 feet vertical, one per 5 quarts, thirty per minute towing, ranging from 70 mu to 280 mu, mostly below 100 mu. Farther down, 1019·5 at 68 F., one fry per 6 feet vertical, one per ten quarts, twelve per minute, 90 to 360 mu. August 21, twelve samples, 1018·5 at 70 F., near high, gave one to 40 quarts, up to nearly one per quart, from 9 to 166 per minute, from one in 4 feet vertical, up to one per foot. Sizes run from 80 to 320 mu with four-fifths of them below 110 mu, and some at 200, 240, and 320 mu. August 25, half ebb, 1020 at 70 F., twenty quarts dipped, give from 9 to 33 fry, also at low 1019 at 74 F., got one fry per 2 feet vertical, and 34 per 160 feet of towing; sizes, 80 to 320 mu, majority below 120 mu, several at 180, 240, and 280 mu. August 28, 1019·5 at 68 F. flow; one fry in 8 to 15 feet vertical, eleven in 1 minute's tow; sizes, 90 to 380 mu, with groups at 100, 150, 280, 320, 360 mu.

Section above Cross creek, August 14, 1018·5 at 72 F. Oysters dredged here have all spawned, fry abundant, one per 2 feet vertical, ranging from 100 to 200 mu, and a few at 360 mu. Majority are 160 mu, perhaps ten days old. August 20, water low flow, 1018 at 68° F., few fry until near high, 1019 at 70° F. when fry are one per 40 feet vertical, one per 5 quarts and fifteen per minute towing, and of sizes 80 to 280

[1] The name of the Greek symbol for "microns," is "mu."

mu, with groups at 100, 180, 240 mu. August 21, fry nearly fifty per minute, eight per 20 quarts, three per 10 feet vertical; sizes 80 to 320 mu, most are below 100 mu, a group at 180, a few at 240. August 25, low ebb, nine to sixty fry per minute towing, five samples, thirty to forty in 20 quarts; sizes 80 to 380 mu, the majority are below 120 mu; groups at 140, 180, 200, 240, 280, and 320. August 28, fry are one per 4.5 feet vertical, of sizes 90 to 340 mu, majority at 140.

Section below Cross creek, August 6, a few small fry present. August 14, 1020 at 70° F., largest fry 120 mu. August 20, high, 1019·5 at 67° F., fry 80 mu to 320. Half ebb, 1020 at 70° F., fry at rate of one per 4 feet vertical, one per 5 quarts, and two per minute of towing; sizes are 80 mu to 220. August 21, fry were found at rate of two to six per 20 quarts, below 200 mu in size. August 28, fry at rate of three to nine per minute and one to 25 feet vertical, sizes are below 260 mu, mostly below 160 mu.

Section near ferry, August 14, 1020 at 69° F., fry at rate of one per 12 feet vertical, under 200 mu. August 20, 1019 at 66°· F., few fry: at lower tide, 1019·5 at 68° F., fry at rate of one per 4 feet vertical, and one per 7 quarts, grouped at 100 mu, 200, and 230 to 280 mu.

Grand River Cove: The roughness of water here prevented frequent observation. August 20, 1019·5 at 67° F., in middle of cove, no fry. At cape Malpeque (Charles point) 1020·5 at 67°·5 F., fry at rate of one per 10 feet vertical, mostly small, one 200 mu. August 21, 1019·5 at 70° F., three fry per 20 quarts, largest 160 mu.

UPPER BAY.

With the upper bay, extending 7 miles southeast of Charles point, or south from Bunbury island, we shall include: (1) the "quadrangle" 4 miles north to south and 3 miles east and west, whose corners are designated, respectively, by Charles point, Bunbury island, Beech point, and Bentinck point; (2) a southern "head," 4 miles north and south, 5 miles east and west, which receives seven tributaries, that will be reviewed in circuit beginning on the northeast.

Oyster Creek: August 7, 1018·5 at 74° F. Thirty quarts inside the grass area at its mouth, yielded four large (160 mu) and many smaller fry. Outside the grass, the fry were few and small, and snail larvæ numerous. August 13, 1020 at 72° F., vertical sampling yielded a few small and one "large" (unequal umbos) fry in three hauls of 7 feet each.

Chichester Cove and Indian River: August 7, 1019 at 73° F., in cove, and 1016 at 74° F., in the mouth of river. Snails numerous, oyster fry few and small, one "large"[1] found.

Barbara Weit River and Cove: August 7, 1018·5 at 72° F. Many snails, few oyster fry. August 13, 1018·5 at 74° F., samples yielded two large and a few small fry. Nearly all adult oysters have spawned, but some not.

Webber Creek Cove, or Waites Cove: August 7, many snails, few fry. August 13, ten hauls in 9 feet of water yielded two large, four medium, several small fry. August 24, twenty hauls of 5 feet each in 12 feet of water, yielded 33 fry, from 160 to 380 mu in diameter, at ratio of one per 3 feet vertical, and quite satisfactory. Shells were put out as cultch here.

Plat River Cove: August 7, sample was poor in plankton, 1020 at 72° F., in grass near cliff west of Webber point. Oyster fry more abundant towards Bentinck cove. August 13, ten hauls vertical in 12 feet of water yielded five medium fry.

Shemody Creek and Bentinck Cove: August 7, in creek, 1015 at 74° F., few oyster fry here. In cove, 1020 at 72° F., oyster fry more abundant. August 13, in mouth of creek, 1020 at 70° F., sample shows but one large fry. In the cove, 1021 at 69°·5 F., vertical sample in 5 feet of water yielded three large and three medium. Farther out, in 10 feet of water, vertical sampling yielded a larva of 240 mu.

[1] We use the general designation of "large" for fry with unequal umbos, "medium" for those with prominent equal umbos, and "small" for those less than 100 mu in length.

"Head" of Upper Bay: August 7, sample near Bentinck point was poor in fry. In the middle of the bay the water was 1020 at 74° F. Each of two samples contained a fry nearly ready to "set." August 24, on high water, 1020 at 68° F., a long course, dipping from Beech point towards Webbers point, yielded but few fry, the largest was 240 mu.

The quadrangle west of Curtain Shoals: August 7, in its southern portion three samples showed many snails but no oyster fry. Farther north it was much the same story, only one large fry found in four samples, but many snails.

Commentary on Upper Bay: The considerable distance of this part of Richmond bay from our base at Malpeque, combined with the roughness of the "quadrangle," prevented as full a study of this part as was desirable. Once we buffeted the waves quite to Bentinck cove and were compelled to return to shelter east of Curtain shoals. This sort of work cannot be done on a boat pitching extremely. From the data secured, it is indicated that the oyster plankton of the open bay is sparse, and that it is only close to the broad flats that line the shores, where the oyster plankton was fairly abundant. There seems to be some correspondence between water temperature and oyster plankton, more being found in the warmer waters than the colder ones. Another point to be noticed is that the water on the shore flats, probably never leaves the upper bay on the ebb tide, but retires temporarily to the edge of the flats to return on high water, and so the contained oyster plankton is not lost from this cause. This is on the supposition that the fry do not themselves have habits that would oppose their transport outwards on ebb tides. While this question is still under investigation there is strong evidence to show that fry are more abundant at the surface on flow than on ebb.

Another interesting point concerns the snail larvæ. These were extraordinarily abundant in the Upper bay. The flats of the Upper bay are extensively covered with grass. We found snails more abundant near grass plots in all parts of Richmond bay. We do not know whether the snails feed on the oyster fry, but have suspicions. This matter is worth investigating. We know that snails are enemies of the young spat. It is probable that these snails should be fought in the interest of oyster culture.

MARCH WATER.

This part of the bay is bounded on the southwest by Curtain islands and Beech point. Across the shoals between the point and the islands, there is current communication with the "quadrangle" and with the Upper bay. March water is bounded on the northeast by Prince point and "Ram" island. Across these shoals, there is water communication with the Lower bay. But the main outlet is to the northwest, between Bunbury and Ram island, into the Central bay. The eastern part of the March water section is the Shipyard basin, at whose head is Malpeque wharf. Shipyard river enters here from the south. Shipyard basin is separated from March water by a considerable grass flat. Extensive grass flats also cover the Curtain Island shoals. The oyster beds are mainly near Prince point, Ram island, north of Bunbury shoals, and the channel between Bunbury and Ram island. Owing to the fact that our home base was at Malpeque, and also that we had to traverse March water every time a visit was made to any other part of the bay, and that it was less disturbed by winds than other parts, this section received more continuous attention than the rest of the bay. It did not, however, offer so rich a plankton as did Grand river between Southwest creek and Cross creek. We shall consider our observation of it as a whole, chronologically.

August 5, at low ebb, on "old dump" in northern part of Shipyard basin, 1020 at 70° F. A dipped sample yields many snails, Peridinias and Tintinnias, a few large oyster fry, some medium, and several small ones. Similar results found after crossing the grass. On Princetown beds the snails were fewer, oysters more numerous, but still

few as compared to the numbers familiar in our New Jersey studies. The mussel and clam larvæ were more numerous, and of more kinds than in Barnegat bay, N.J.

August 6: Three samples were dipped in the "basin," with results like those of yesterday. Samples taken after passing grass, between Ram and Curtain islands and at junction with the Central bay show few small or medium oysters, none large, many other bivalve larvæ and snails. Samples were again taken on return from Bideford and Grand rivers in evening, but labels were lost.

August 7: Shipyard basin, before reaching the grass, one sample shows one large and one medium fry, and few small ones. After passing the grass, sample yielded five medium fry under 120 mu. Returning in the evening from trip to Upper bay, a sample taken between Ram and Bunbury islands, was nearly all snails; a sample near the grass had many snails, and a few oyster fry. In the Shipyard basin a sample yielded many small oyster fry.

August 9: Rainy, tide high. In the channel opposite the break between Little and Big Curtain islands, compared vertical samples with dipping from the surface. The surface was 1021 at 67° F., and yielded one large and one medium, in 20 quarts, and a fair show of small fry. The bottom 1021 at 68° F., yielded three medium, and some small fry and lots of sand. Next the surface was sampled, using 20 quarts in alternation with vertical "hauling" in the three uppermost feet, nine samples. Thirty feet of vertical sampling nearly balanced 20 quarts of surface dipping. No fry larger than 120 mu were found, and never more than one or two; small fry were present in small numbers.

August 10: Compared dipping with vertical sampling from bottom to top. In 20 feet of water between Bunbury and Ram, and Prince to Beech points, hauled net, and dipped 30 quarts from surface, 14 samples. Obtained two fry of 200 and 260 mu, three to six medium, and several small ones. Found four species of three genera of Peridiniдæ, viz., *Ceratium tripos, C. divergens, Dinophysis acuta,* and *Peridinia* sp? Also many *Tintinnus subulatus.*

August 11: High water, and strong northeast wind. An oyster secured by dredging in channel is filled with immature spawn. Water 1021 at 66° F. Shells obtained by dredging hold no spat except "deckers" and barnacles. Samples of 30 quarts yield each two large fry and two medium ones. Vertical sampling secured one large fry per 20 feet; also some medium.

August 12, a sample dipped near Bunbury yielded one medium, and two smaller fry. Oysters from Ram Island point are nearly through spawning. Hung out shell culteh on buoy nearest wharf, and sampled water here, finding one large and two medium fry in 20 quarts.

August 14, in channel between Ram island and Little Curtain island, water is 1019·5 at 68° F., vertical sample gives one fry per 14 feet, the largest being 200 mu, but most are 120 mu. In Shipyard basin, at the buoy farthest from wharf, water is 1019·5 at 70° F., and vertical sampling yields one fry per 12 feet; one is 360 mu, or nearly ready to set, one is 200 mu, seven are 120 mu. At buoy nearest wharf, vertical sample gives one per 30 feet, with largest larva 160 mu.

August 16, rainy. Made a survey of March Water section, at same time compared methods of taking fry. Used vertical sampler for surface towing, as well as for deep sampling. Between Ram and Bunbury, secured fry of sizes 80, 100, 160, 200, 280 mu. In line of Beech point and Ram island, vertical sampling yielded one per 30 feet of sizes 80, 120, 160 mu. In line of Beech point and Prince point, vertical sampling gave one per 20 feet of sizes 160, 240, 340 mu. Towing towards Princetown beds yielded fry up to 180 mu. On Princetown beds, vertical sampling yielded one per 15 feet, of sizes 110 to 120 mu, 160, 240, 320, and 400 mu, which last is the largest seen, and also represents the largest after "setting." A second sample towards Grog island gave similar results, both in ratios and sizes. A towing sample yielded six large fry per minute, the leading groups being at 160, 240, and 340 mu. Small fry being quite difficult to separate from small larvæ of other bivalves, were generally not counted fully.

Vertical sampling on the "dump" yielded one per 30 feet, the largest being 200 mu. Similarly, off Ramsey's, one per 25 feet gave sizes 160, 220, and 380 mu. Towing towards the buoys farthest from the wharf, gave fry 180 to 240 mu. At this buoy a string of shells was hung as cultch; vertical sample here yielded one per 50 feet, of sizes 280 and 320 mu. Another sample at the buoy nearest the wharf gave same vertical ratio, but of size 160 mu only. Towing towards wharf also gave fry of this size. Towing towards Shipyard river yielded no fry.

August 17, on way to Bideford, water on Little Curtain shoals was 1020 at 70° F. Towing at full speed between Bunbury and Ram island, yields no fry, and we suspected that all were pressed through net. A northeast storm broke at 11 a.m., and weather did not clear until afternoon of the 19th. Meanwhile, we coated oyster shells with coal tar varnish for use as cultch.

August 20, compared 20 quarts dipped with one minute of towing. On "dump" no fry in either sample. On Princetown beds, fry were found only in towing sample, of size 140 to 200 mu. Further along channel no fry were found, nor all the way to Cross creek, in Grand river, a distance of 9 miles, and with one exception none were found in Grand river until the afternoon, when the flood tide came and there were plenty. This suggests that the fry had hidden in the bottom during the storm. On return, a pair of samples taken in March water between Ram and Bunbury islands, 1020 at 68° F., yielded no oyster fry, though plenty of mussel larvæ were present.

August 21, tide ebbing all forenoon. Tarred shells were planted on Curtain Island shoals and Ram Island shoals. The afternoon was spent in Grand river.

August 23, too rough for sampling, tarred shells placed on Reilley's lot.

August 24, visited McNeill's lots off Waites point. Oysters there had finished spawning, and shells one week planted bore spat a millimeter (1000 mu) in diameter. Tarred shells were hung out on these beds. A study of the spat on shells showed that the fry set between 320 mu and 400 mu. For future studies of the spat see later the special section on "spatting."

August 26, cool and cloudy. Found water fresh and at 60° F. at head of Shipyard river; near its mouth 1018·5 at 72° F., high water. Worked in shelter of Bunbury island ("Big Curtain" island). Made study of methods and comparison of nets Nos. 12 and 20, in the channel, and secured most variable results: out of thirteen samples, two yielded no fry, the others yielded fry groups at 100, 120, 200, 240, 280, 320, and 360 mu, at a rate of seven to twenty-four per minute, and one fry per 6 to 30 feet. Many spat show on shells on planted beds. Took up shells placed August 12 and August 16. No spat on latter; one-third of former bear spat.

August 27, cold northwest wind. Water at wharf 1019·5 at 66° F. Took up tarred shells placed on Curtain and Ram Island shoals on the 21st, and also those planted August 23 on Reilley's lot. From Curtain shoals to Reilley's, water was 1020 at 68° F. Secured nine samples en route, which were studied before being killed by formalin. We noticed action of the long proboscis-like foot of the mature fry. The larvæ swims hinge down, with foot in front or dragging behind at will; used as a feeler to test surface for fixation. The fry secured, yielded sizes of 90 to 120, 160, 220 to 240, 280, 320 to 380 mu. Fewest are near the Reilley end of route.

August 28, on Ram Island shoals, 1021 at 62° F., a few fry below 160 mu secured at rate of one per 30 feet. Fifteen quarts dipped had none.

CENTRAL BAY.

We next consider the northern or main section of the Central bay as it receives the ebb from the southern sections (viz., the quadrangle and March water), as well as that from Bideford and Grand river. We have noticed a decided falling-off in the number of fry as this portion is approached, so that we do not expect much from its survey. It has a considerable number of more or less depleted beds in its southern

part, at the junction with the southern divisions, or in the neighbourhood of North Bunbury shoals, between the northern parts of the quadrangle and March Water section.

August 6, three samples taken on the way to Bideford river showed the presence of oyster fry, but none over 120 mu. South of Low point, 1021 at 70° F., and on route to Grand river the same result was secured, and also from Grand river to March water.

August 7, the story of yesterday was repeated, and again on the 8th. The catch between the "Klondike" bed and North Bunbury shoals was mostly composed of snails. On August 10, at the west end of Horseshoe shoals, and therefore on the line of junction with the Lower bay, snails were few, but mussel and other bivalve larvæ most abundant; few oyster fry were observed; but so much sand was present as to render the examination difficult. On August 17, towing north of Bunbury en route to Bideford river yielded one fry 160 mu, on high water. Farther north, 1021·3 at 70° F., a second fry of 160 mu turned up, and a few smaller fry near Low point. Fry grew more abundant near the mouth of Bideford river. August 20 enroute to Grand river, six samples were taken from North Bunbury to half-way to cape Malpeque (Charles point) with water 1020 at 68° F., and no fry were found. Next day, between Ram and Bunbury islands, at the entrance to March Water channel the same story was repeated. We may conclude, therefore, that the main stretch of Richmond bay proper is well depleted of oysters, and that the more abundant plankton of its estuaries and shores is not carried into it, to more than a slight extent.

THE OUTER OR LOWER BAY.

This division of Richmond bay is wide in the west, embracing the extensive Horseshoe shoals; and is narrow in the east, where the deep channel of Malpeque harbour leads out between Bill Hook island and Royalty point to the inlet. Farther east, Darnley basin connects from the south, between Royalty point and cape Aylesbury. Oyster beds are located north of the Horseshoe shoals, near Hog island, south, near Ram island, east, in the "harbour," and also at Montgomery point between Royalty point and Prince point.

August 5, samples taken near the beds of Ram Island point, and at the harbour, were crowded with mussel and other bivalve larvæ, among which was a small proportion of oyster larvæ, the largest being 165 mu; water 1020 at 68° F. In Darnley basin, 1021 at 70° F., low flow, no oyster larvæ were found either near its outlet or near its head; but an enormous number of Peridinias were present. August 10, strong east wind blowing against a strong out-going tide, between Horseshoe shoals and Ram island, one fry 120 mu, appeared, and several smaller ones in 30 quarts. Vertical sampling of a total of 30 feet, showed fewer fry, but more silt. In the harbour, a comparison by dipper sampling, with vertical sampling, showed so much sand that the determination of the fry was unsatisfactory; so far as the evidence went, it showed the presence of fewer fry than farther up the bay. North of the shoals, towards Hog island, the samples doubtfully contained oyster fry, but were crowded with Peridinias; west of the shoals, a few fry less than 120 mu were found. August 28, at Montgomery point, vertical sample showed a ratio of one fry per 15 feet, mainly small, but sizes 320 and 360 mu were also present.

Commentary: Our samples of this, and of the Central divisions of the bay, except March water, were not so numerous as they should have been to form definite conclusions. These parts of the bay are specially difficult of study, except in calm weather, at which time conditions are also extra favourable for study of regions richer in fry. Enough has been learned to make it reasonably certain that oyster fry were abundant in proportion to the distance from the outlet, and we believe this is due to at least three causes: (1) loss by ebb tides; (2) coldness of water near the inlet; (3) fewer oysters. Even when the oyster beds nearest the central and lower divisions of the bay were in their original full vigour, we believe that they were maintained with a narrower margin of survival than those farther away. Under the circumstances, it has been easier to deplete them, and will be correspondingly more difficult to restore them.

SUMMARY OF THE DISTRIBUTION OF OYSTER FRY.

The yield from 20 quarts dipped was one to four fry in Bideford river, one to forty fry in Grand river, one to three fry in Upper bay, two to five fry in March water. One minute's towing yielded 2 to 166 fry in Grand river, and seven to twenty-four fry in March water. Vertical sampling yielded one fry in 15 to 60 feet in Bideford river, one to 40 feet (with majority at two to 6 feet) in Grand river, one to 24 feet (average at 10 feet) in Upper bay, and six to 50 feet (average 25 feet) in March water. Grand river leads, with March water and Upper bay struggling for second place. Our highest record of two fry per quart sinks into insignificance, when compared with the several hundreds per quart with which we have been accustomed to deal in our New Jersey oyster investigations.

TABLE summarizing the sizes, in microns, of oyster larvæ, August 5-28.

—	Aug. 5	6	10	13	14	16	17	20	21	24	25	26	27	28
Stages....	*	*	*	*	*	*	*	70	*	* *	*	*	*	*
I.....	*	*	*	*	*	80	*	80	80	*	80	*	*	—
Trans.....	*	*	*	*	*	*	*	90	*	*	*	*	90	90
II.....	*	*	*	*	*	100	—	100	100	—	*	100	*	100
	110	—	—	—	—	110	—	*	110	—	*	110	*	*
	—	—	120	—	120	120	120	*	*	—	120	120	120	*
Trans.....	—	—	—	—	—	—	—	140	*	—	140	—	—	140
III.....	160	—	—	—	160	160	160	*	160	160	160	—	160	160
	—	—	—	—	—	180	180	180	180	*	180	—	—	*
	—	—	200	—	200	200	200	200	200	*	200	200	—	*
Trans.....	—	—	*	—	—	220	*	220	*	*	*	—	220	*
IV.....	—	—	*	240	—	240	*	240	240	240	240	240	240	*
	—	—	260	—	—	—	260	*	*	*	*	—	.....	260
	—	—	—	—	—	280	*	280	*	*	280	280	280	280
Trans.....	—	—	—	—	320	320	*	320	320	320	320	320	320	320
V.....	—	—	—	—	—	340	*	*	—	*	340	—	*	*
	—	—	—	—	360	—	360	360	—	*	*	360	*	360
	—	—	—	—	—	380	380	—	—	380	380	—	380	380
	—	—	—	—	—	400	400	—	—	400	—	—	—	—

The preceding table of sizes must not be interpreted without a clear understanding that it represents a summary of the records, and only roughly a summary of the actual facts. The records, as compared with the facts, are incomplete, fragmentary, and approximate. They are incomplete in that a careful correlation of sizes and temperatures was not made, or where made, the data have not been worked into the table; also incomplete, because the relative proportions of fry at the different sizes, though secured in a large number of our observations, have not been incorporated. This because of the misleading conclusions that would be derived from such a collation, in the absence of temperature relations, sufficiently complete to be of scientific value. The records are fragmentary, in that it was impossible to secure full data from all the areas, and we wished to cover all the area even though it had to be done at the sacrifice of completeness. The sizes are approximate, in that we purposely used a low-power microscope and a micrometer with coarse divisions, for the sake of

*Sizes noticed but not counted. Stages are: I., straight hinge stage, or "small"; II., equal umbos, or "medium"; III. and IV., unequal umbos, or "large"; V., ready to set as spat. New Jersey oyster larvæ set in stage IV., Canadian in Stage V. "Trans" means transition from one stage to next.

expedition, judging by the eye of the fractions. No accuracy beyond 10 microns was possible, and we rarely strove for an accuracy beyond 20 microns. Thus all our measurements fall into groups separated by 20 microns, which gives the false impression that the fry were produced in corresponding broods. There is no doubt that broods do exist, but it is necessary that the entire attention be focused on this aspect of things, in order properly to establish the number and sizes of the respective broods. We had to choose between covering a small field of observation thoroughly and accurately, or the reverse; and we deliberately chose the latter alternative, as the logical thing to do, beginning with the general and specializing on such parts as the general survey showed to be worthy of additional work. Of course, a complete uncovering of oyster biology cannot be expected in one month or one season, hence the finer work remains yet to be done.

But the table does indicate some things of practical value, and that is why it is introduced. It will be noticed that fry, ready to set, were not observed in fair abundance until August 16. Indeed, the largest recorded for the 5th, 10th, 14th, and 16th, represents a regular advance in growth of 240 microns in twelve days, or 20 microns per day, which gives seventeen days as the minimum length of life of the floating larvæ. This length of life is quite to be expected under the influence of the higher range of temperature, 72 to 74 degrees, recorded. But a large proportion of the fry exist in temperature averages of less than 70 degrees; and there is independent evidence[1] showing that the period of free life of the fry in Richmond bay is over three weeks. It is not unreasonable to suppose that some of the fry may grow even slower than this rate. The rough survey marks out the boundaries of special problems that call for more accurate researches, on the rate of growth. Another feature indicated by the table, is the distribution of spawning. Spawning began late in July or early August, and was practically continuous throughout the greater part of August, with a climax at the 20th. Not only does an individual oyster use a considerable period for ejecting its spawn, but the individuals on a bed do not mature at the same time. Further, it is evident that as the oyster beds of the bay are subjected to different ranges of temperature, the different beds do not propagate simultaneously. It follows, therefore, that spatting is also a more or less drawn-out affair, although there are special favourite days for spatting as for spawning, dependent on weather, as shown by our New Jersey researches. These researches also have shown that not all the broods of fry that appear successively, reach the spatting stage successfully. This is another problem demanding research. The practical aspect of this question lies in the fact that cultch, to be most useful, must be clean, and to be clean must be placed closest to spatting periods. It follows that cultch planting should be periodic, and that the periods should be regulated by the general weather and special plankton reports of the locality proposed to be shelled. For further discussion of spawning and spatting see those sections farther on.

TEMPERATURE SUMMARY.

Temperature is a factor of supreme importance in oyster life. The warmth of the water depends on depth, character of bottom, distance from inlet, direction of winds, temperature of the air, and on the sunshine. The highest temperature was 76° F., observed once on the flats off Tilton creek; but 74° F., was found at the head of Bideford river, in Shemody creek, in Indian river, in the head of the bay, in Oyster creek, in Barbara Weit river, part of the time at Grand River bridge, and near Southwest Creek bridge. This is only 6 degrees above the minimum for oyster propagation, and the main areas of Richmond bay fail to reach this maximum. Thus, 72 degrees was recorded in the upper Grand river, Trout river, Bideford river, off Plat river, lower part of Shemody creek, and off Barbara Weit river, Oyster creek, and the mouth of

[1] See Stafford. "The Canadian Oyster," 1913, pp. 83 and 84. This excellent memoir is a very full exposition of the biology of the oyster.

Shipyard river. Seventy degrees was recorded for Shipyard basin, Darnley basin, Narrows, Bideford river, Shemody creek, Grand river, March water, Curtain Island flats, etc. This figure was recorded more often than any other, but 68° F., stands next in frequency, being recorded not only for the deeper and lower parts of the bay, as at the inlet, March water, head of Grand River cove, etc., but also from upper Grand river and Bideford river, after the cold winds and nights of the latter half of the month. There were eight instances of 66 to 67 degrees in March water and Grand river, after cold weather. August 28 the water at Ram Island shoals was 62 degrees. At the head of Shipyard river, where the water was quite fresh, it was 60 degrees on the 25th.

At best, the length of the season when the water in Richmond bay is warm enough for oyster propagation, is short, and when the warm weather of spring is delayed, as was the case in 1915, the spawning is shoved into August, and the spatting comes so late that the spat secure only slight growth before winter temperatures begin. The late spat of 1914 thus attained only a small size during the second summer of its existence. We found spat in August from Ram island, scarcely larger than one's little fingernail, that must have set the preceding fall.

A question arises here, to what extent may the oncoming cold of autumn interfere with the spatting of the late broods of fry which were the principal ones this year? In more southern waters we frequently get a set of spat in September, and even in October, and these have some chance to grow before winter. But there is quite likely a temperature limit, to spatting itself, which it is important to determine. The shallowness of a large part of Richmond bay, favouring rapid heating of the water, is also favourable to its quick cooling. If, therefore, the largest brood of fry should be prevented from setting, there is an additional obstacle to the rapid regeneration of oyster beds in Canadian waters. This also has favoured rapid depletion.

SUMMARY OF DENSITY OBSERVATIONS.

A great deal too much emphasis has been laid on the question of the saltness or density of the water in which oysters may be expected to flourish. Doubtless, the admixture, more or less periodically, of fresh water with the salt water, at the mouths of rivers, has a beneficial effect, but the range of salinity in which oysters will grow is so great that the careful observation of one or two points difference in reading on the scale of the salinometer, is of little practical, or possibly even scientific, value.

While salinity depends on distance from inlet, distance up rivers, the stage of tide, on wind strength and direction, and on rainfall, the variations and range of the readings of our salinometer were remarkably small. We found, in fact, almost the same readings as obtained at our New Jersey, Edge Cove, station. The highest record was 1021 found in Darnley basin, at half flood (August 6), in the Narrows at low, off Low point at half flood, in the channel of March water, both top and bottom, at high tide August 9 and 17, in Central bay, north of Bunbury, and in Ram Island shoals at high.

A reading of 1020 was most frequent, as in Shipyard basin, August 5, in Malpeque harbour at low, off Lennox island, and in the Narrows, off the mouth of Plat river, in Shemody creek (August 7 and 13), off Tilton creek, and in the Upper bay, both at low (August 7) and high (August 24), in Oyster creek at half tide, at Grand River ferry on high, on Curtain Island shoals, and the mouth of Bideford river at high, and in March water at low (August 20 and 27).

Twenty observations gave 1019 and 1019·5 most frequently in the rivers or at the mouths of creeks. In Grand river, 1017, 1018 and 1018·5 were found not far distant from the bridge. This record was also given in Barbara Weit, Oyster creek, and Shipyard river. A reading of 1015·5 was observed well up Shemody creek at low

water, and 1016 in Indian river. The lowest, 1015, was recorded at the head of Trout river; the observation at the head of Shipyard river, which was the only river that was penetrated into the parts accessible only at high water, was exceptional. Here the salinometer read 1000 at 60° F.

SPAWNING.

It was easier to ascertain the progress of spawning from examination of the plankton, than by dredging for oysters and opening the same. Dredging on natural beds did not bring up many oysters, and we depended on oysters from planted beds secured under direction of those in charge. An oyster secured in March water on the 11th was filled with immature spawn, but next day samples at Ram island showed that their spawning was completed. On the 13th in Bentinck cove we found that spawning was hardly half through, as half of the oysters had not begun, and the others were only partly spawned out. Near the Barbara Weit, on McNeill's beds, however, only a few oysters contained spawn. On the 14th, in Grand river, half-way between Southwest creek and Cross creek, we again noticed that half of the oysters were still in full spawn; but near Cross creek, all that we secured were empty. Dredging for oysters near the ferry failed to secure any samples. On the 24th, on McNeill's beds, there were still traces of spawn. On the 26th, oysters in March water were through spawning. Owing to the small number of samples opened, and few observations, only general conclusions can be drawn from these observations, viz., that before the 20th there was abundant spawn still present, and that after that date the oysters were nearly but not entirely through spawning.

Turning to the plankton record, we find that fry which were probably ten days old were present August 5, but oyster plankton was not abundant until August 14; and these fry were also about ten days old. On the 17th they were advanced to 200 microns, indicating an age of about two weeks. On the 20th, and especially on the 21st, small, lately hatched fry were most abundant. Here was a climax in the spawning, which probably occurred on the 20th, a fine day following stormy weather. On the 25th, fry under 100 mu were scarce, but very abundant at that size, and not yet a week old. This day was a banner day for showing fry; they were abundant up to 320 mu. On the 26th and 27th there was an increase in the fry under 100 mu in size, but these had attained 100 mu on the 28th.

SPATTING.

The study of spatting involves the determination of the date of "setting" (fixation of the fry to cultch as spat). Also a study of the rate of growth and of survival; also the determination of the most suitable cultch and localities and other conditions favourable to this process.

The date of spatting can be fixed by two independent sets of evidence: (1) observations on the presence and abundance of the largest fry "ready to set" in connection with the plankton data; (2) the "lifting" of the cultch, such as shells, from time to time, and giving them careful examination, after drying. Such shells should be specially selected, the cleanest obtainable, and preferably have been experimentally placed at set dates.

From the table given a few pages before, we learn that fry of spatting size (320 to 400 mu) were present in relative abundance from August 14 to 17, and on the 24th and 27th. These fry were not nearly so abundant as the fry seen previously, of sizes 260 to 320 mu. There was a reduction of at least 60 per cent. Part of this reduction may be explained as due to the probable presence of a certain number on the bottom seeking suitable cultch, so that the net necessarily failed to catch them. Part of the reduction was probably due to destruction.

When fry of 260 to 320 mu are compared with earlier stages, we find also a reduction nearly as great, and while it is possible that the fry will remain on the bottom

more frequently as their shell grows larger, yet we are inclined to place the responsibility for the reduction upon destructive agencies. It must not be forgotten, however, that the number of fry secured from the water is not a true index of the number present, because a large proportion of every brood of fry will be found near the surface on fine days, and deeper down, or at the bottom in bad weather. Hence, the number is, to a good extent, an index of weather variations.

Although the water may show fry of spatting age, it does not always follow that a "set" will occur; if it did, the task of foretelling the date for placing cultch would be relatively a simple matter; this act seems to require fine weather. Much work needs to be done in this connection before we shall learn all we ought to know, in order to be of the best practical use, although what is already known can now be applied to advantage. From the table of fry sizes, it is evident that spatting was prophesied to occur from mid-August onward to the close of September, whenever conditions were favourable. It remains to study the cultch to fix those dates. We are not, however, in a position to state the exact date of "setting" from a measurement of the spat until we know their rate of growth. This in turn cannot be learned except from a knowledge of dates of setting, determined independently. As much, if not most, of the spatting occurred after we departed, our data will not be complete; but shell samples sent us later throw some light on this question.

We have seen from the table that fry, ready to set, were not abundant until mid-August. Examination of cultch on the 11th and on the 13th, as well as other dates previous to mid-August, failed to reveal the presence of spat. Experimental cultch was suspended from a buoy near Malpeque wharf on the 12th, and on a buoy farthest from the wharf on the 16th, on Reilley's lots on the 23rd and on Curtain and Ram island shoals on the 21st. Part of the cultch consisted of plain, selected, hard shells, and partly of shells of a crumbly nature taken from weathered heaps of "mussel mud." Each of the latter shells was coated for two-thirds of its area from the broad end, with coaltar varnish. The object of the experiment, was to compare the relative effieiency of such a surface with the plain part of the cultch. Coaltar varnish was chosen because this is used to cover the bottoms of boats, and a boat was shown on which a fine catch of spat had fastened the previous season, thus suggesting that this paint was attractive to spat. It is easily understood why this boat carried such a set of spat. A bacterial slime will not form on the tar because of its antiseptic qualities; and other vegetable growths will likewise be prevented. Many of the spat of other animals, such as barnacles, might reasonably be supposed to avoid that surface, the coating being applied to boat bottoms to keep clear of such things.

There is, however, another factor to be considered as present in the case of the boat, which was not imitated with the tarred cultch. The bottom of the boat in the water is an "under" surface and not connected with the bottom. Being an under surface, no silt or sediment can settle upon it; and being unconnected to the bottom, the various crawling animals, snails, etc., would not be able to reach it and browse on its collection of spat. We note another fact of importance, viz., the paint was applied in the spring, several months before the spat set. Thus the tar had become thoroughly seasoned and hard, its soluble parts, creosotes, etc., that might be offensive to spat, had largely soaked out, when spatting began. In the case of our experimental cultch, only a few days' exposure to the water was admissible before the test occurred, and the tar was still soft where thickly applied.

The earliest spat observed were on shells taken on the 24th on McNeill's grounds, near Waites cove. Some of this cultch had been planted a week before, and some had lain a year on the beds. Several oysters were taken, and the outside of their shells was fairly well set with spat. The average spat was 1000 mu in diameter (which equals a millimeter or one twenty-fifth of an inch). These, like all young spat, showed the larval shell of the size it was when setting occurred, and also the later added spat-shell. The larval shell ranged from 320 to 400 mu, and the spat shell

made a rim of 75 mu around its edge. As most of the larvæ are 400 mu high, from tip of left umbo to edge of right valve, it follows that spat growth can best be indicated by omitting this "constant" from the total measurement, which will henceforth be done.

August 26, the experimental shells which were placed on the 12th and the 16th, were taken for examination. No spat were found on the shells placed August 16, but a third of the shells placed August 12, carry spat up to a diameter of one millimeter. As no spat were found on the shells placed on the 16th, the inference would be that the spatting occurred before the 16th, which, taken in conjunction with the fact that these spat were of nearly the same size as those seen August 24, on shells planted for a week, leads us to the conclusion that in both cases we have to do with the setting of spat that showed as "ready to set" in the plankton of August 14. It might, however, not be true that the shells placed August 16 failed to catch spat, because all had set that were ready. Possibly none were in the water at that point, and this supposition becomes probable when we study the shells taken from the McNutt bed, next to be considered.

Assuming the 14th as the probable date of first spatting, we get the tentative result of about 100 mu growth of spat shell per day.

On the 26th we "lifted" several oysters and shells from the McNutt beds, and these showed spat very much like those in the McNeill samples. The most spat were found on the inside of oysters that had died and decomposed recently, leaving clean inside surfaces, well protected from entrance of both silt and the larger enemies, such as snails, because the valves of the oyster shell naturally separate only narrowly. A study of the distribution of these spat is instructive. The number of spat on the outside was equal for both valves, but totalled only one-eighth of the number found inside. There were twice as many inside spat on the right valve as on the left or lowermost valve, even in the instance where both valves were absolutely clean. The number was in all cases proportional to the cleanness of the surfaces, ranging for the inside upper valve from 1 to 150 spat per shell. The highest number was on a small shell, and the spat were most beautiful, showing what nature can do even with limited resources, if given a fair chance. We should also note that the spat prefer to set on the under side of an object, even when the surface is no cleaner or otherwise better than in other positions. The European oyster farmer takes advantage of the fact in his method of tile culture. In short, the spat like a "roof over foot." This is the result of natural selection, as those fry that possess the instinct to set under a surface, are not so apt to be smothered by silt, and also they find less silt to scrape away to get a hold.

The spat shells were measured in nearly fifty instances on the best set cultch sample and we found all stages present, from spat newly set, up to those having 1200 mu of spat-shell. Sizes 150, 400, and 600 mu had the most numerous representation. Allowing 100 mu growth per day, we get twelve days as the age of the oldest, which brings the date of beginning of spatting to be the 14th, quite in harmony with the plankton evidence. The main spatting period was from August 20 to the 22nd. This is in harmony with the figures in the plankton table for this period, showing few fry in stage V, because they were exploring the bottom at the time. As the climax of the spatting occurred on the 20th, and no spat were found on the shells placed on the 16th (taken on the 26th), it is evident that no fry ready to set were present at that locality. Still farther from the wharf were the Reilley experimental shells; they were placed on the 23rd and taken up on the 27th, and no spat were present on them. So here, too, was an area which was poor in spat, at those dates at least. Just how far fry may wander from their birthplace, during the weeks of their plankton life, is not known, but it is a possibility that they do not wander far. This is a subject of great importance, and deserves careful research. While they are in the plankton condition they are a part of the water, and they use their swimming powers to rise or to sink. By rising into the tide early in flow, and settling to the bottom before ebb begins, it is evident they can wander as far from home as the distance travelled by a tide in six or seven hours. This would not distribute them laterally, to the current, except when

strong winds blow crosswise and they are at the surface, which is not usually true in rough weather. Everything depends on the adjustment they make in reference to the tides. We have found most fry on the flood tide. This would prove that the tendency is to work away from the inlet, and up towards headwaters.

On August 27, samples of tarred shells, placed on the 21st on Curtain island and Ram Island shoals were taken. Spat were found only on the Curtain island shells, on about six out of two dozen shells, and only from one to three spat per shell. The spat shell added, ranged in width from 160 mu to 600 mu during the six days' sojourn, thus corroborating our previous calculations. It is of course possible that the largest did not "set" at the earliest hour after planting, and so the growth might be greater than 100 mu per day. This would not be surprising, since the conditions for growth are very good on these current-washed shoals. If the rings of growth seen correspond to diurnal additions, then one spat grew at the rate of 180 mu per day. But it has yet to be proved, that the growth of the dissoconch or any other shell growth, is adjusted to diurnal rather than tidal variations, or something else.

On September 3, Robert McKenzie took samples of shells from the McNutt beds, which were forwarded to me. Three of the seven shells sent carried spat; two "rights" held twenty and fifteen spat, respectively, and one "left" held six spat. This distribution suggests that they came from intact shells, for if the valves had lain on the ground separately, the left valves would have carried the most spat. The appearance of the shells showed that they came from "cluckers" (i.e., oysters which, when tapped, sound empty). Two-thirds of the spat on these shells were newly set, and the oldest had a spat shell of 900 mu, which brings the date of their first setting not earlier than August 25. In harmony with this, our plankton table shows a considerable number of fry ready to set on the 24th, with subsequent relative absence of this size. On this latter date also there was a great increase in younger stages, which probably furnished the spat that set September 2 to 5.

On September 18, Hubert P. McNeill took up and forwarded a string of tarred shells which we had placed on his beds on August 24, and also a large shell, which he wrote was planted August 30. These samples proved highly interesting. Considering first the August 30 shell, this was a large left valve and remarkably clean after having been in the water for "eighteen days." It carried a small shell on its back with its smooth or inside surface facing in the same direction as the outside of the main shell, and occupying a seventh of its surface. The smooth inside of the large shell carried thirty-four spat, the outside eighty-nine spat, and the small shell thirty-eight. Had the small shell been absent, there should have been a hundred spat, or three times as many as on the inside; but if the entire surface had been as good as that of the little shell, there would have been 266 spat, or nearly eight times as many as on the inside. To account for this, we believe the shell hung with the curved side down. Had it rested on the ground, the spat would have been excluded from the center part of the convex surface. The sizes of the spat shells, viz., 40 to 560 mu, show that spatting had occurred within five or six days, so that there is a question as to its having been exposed for a longer period than a week. Turning now to consider the sizes of the spat shell-growth on the shells placed August 24, we have ranges of 0 to 2600 mu. As these shells were exposed twenty-five days, we have another fine coincidence on the basis of 100 mu growth per day, assuming that setting began at once, which is probable, as the water at the place where the shells were hung had the finest show of fry, ready to set, seen in the entire bay. Granting this assumption, then there was spatting at this point on August 24, 28 and on Sepetmber 3, 5, 7, 8, 11, 16, and 18, with climaxes on the 5th and 15th. The latter climax fits the facts of the large shell lifted September 18, but leaves a mystery about the absence of fry on September 3 to 5, if it was placed August 30, for the tarred shells corroborate the evidence of the McNutt shells. It must be carefully noted, that in all this calculation

the assumption is that the spat grow equally and similarly and uniformly, certainly rather unlikely. We need to have some careful research made on this problem.

Next let us consider the value of tar as a coating for oyster shells; does it improve shells to varnish them with coal tar? Striving to not crowd these pages with detailed tables, we shall give only the results of counting the spat. The figures show that per unit area, the tarred surface captured only two-fifths as many spat as did the unvarnished shell; that the smooth side and rough side of the plain right valve were equal; that tarring reduced the number of outside spat to half, and those setting inside to a quarter as many as would have otherwise set. For the left valve, there was no difference between the plain and tarred surfaces outside, but a reduction to a fifth for the inside. The left valves caught more than twice as many spat as did the right valves. This was true respectively both for the plain and the tarred surfaces. We had long ago established similar ratios for these valves; yet we showed above that in "cluckers" lying in the normal position, it is the right valve that gathers most spat. The reason the left, free, valve and outside surface is superior to the right, is due to the fact that the silt fails to bury its edges as quickly as in the case of the flatter valve, when both are free.

The outcome of these researches is to suggest further studies with cultch coated with the composition (equal parts of lime, sand, cement) used for tiles in Europe. This is useful in view of the scarcity of cultch in Prince Edward Island.

October 4, Mr. McKenzie gathered samples from Ram island, placed there August 21. These shells held only "deckers" (Crepidulas). October 5, Mr. McKenzie gathered samples of Curtain island shells left there August 21, and therefore exposed for forty-five days. Two of them were tarred shells, carrying Crepidulas both on the tarred and the plain areas. The plain shells have but one spat on one surface (rarely on both). They range from 4 to 10 millimeters in diameter. Fragments of a Mya shell carry four spat of 16 to 20 millimeters in diameter. On the supposition that the largest had "set" as early as mid-August, they would be not more than fifty days old, and in the case of the largest spat, a growth of 400 mu per day must have been attained on an average. Of course the growth is absolutely more rapid the older the spat, though it may relatively be less so. It is desirable to have careful studies made on growth, and we await with interest the results of Professor Robertson's researches on this subject.

CONCLUSION.

We have found that oyster propagation in Richmond bay shows the effects of the very considerable depletion indicated by statistics; but there are still areas, where careful planting of cultch will capture a fair set of spat. We wish to emphasize the necessity of pushing the practice of raising oysters from the seed, by artificial culture, insistently, persistently, consistently, and intelligently and scientifically, as the only way to restore the bay to its original productiveness, or even to keep its beds from ultimate destruction. But if the practice of scientific oyster culture be encouraged and developed, there is no reason for doubting that the maximum production formerly exhibited by this bay, under nature, and by fishing methods, can be increased very much. We do not think that every one of the 32,000 acres in this domain, can be made productive, but there is a good possibility that a quarter of this acreage may be made productive, and when that time arrives the annual product should be nearly a million bushels. It is worth while to strive for that figure, even if it may take a long while to reach it; by thus striving, it is certain that the present production will be increased many fold, to say nothing of conserving the very life of the oyster industry. If we go not forward we shall surely drift backward.

SESSIONAL PAPER No. 38a

THE MARINE ALGÆ OF THE PASSAMAQUODDY REGION, NEW BRUNSWICK.

By A. B. Klugh, M.A.,

Queen's University, Kingston, Ont.

(Plate VIII.)

The work which forms the basis of this report was done at the Marine Biological Station, St. Andrews, N.B., in April, May and June, 1912, and May, June, August and September, 1913.

The region covered is from St. Stephen, at the head of navigation on the St. Croix river, to Grand Manan.

The Algal flora of this region is distinctly boreal in character, as is shown by the luxuriant growth of *Fuci* and *Laminariae*, and by the occurrence in comparatively shallow water of *Dictyosiphon hippuroides, Halosaccion ramentaceum, Saccorhiza dermatodea, Agarum turneri* and *Monostroma fuscum blyttii.*

There is a considerable difference in the Algal flora of what we may term "inside" and "outside" points. By "inside" we mean on the mainland side of Passamaquoddy bay, by "outside" the shores of the islands (Deer, Pendleton's and MacMaster's) which form the outer boundary of the bay, and all points beyond these islands. These differences in the Algal flora may be pretty definitely traced to differences in the salinity of the water "outside" and "inside." Inside the water has a specific gravity at the surface of from 1·0226 to 1·0235, and a percentage of total salts of from 2·99 to 3·202, while outside waters have a specific gravity of from 1·0235 to 1·0242, and a total salt content of from 3·201 to 3·280 per cent. For these figures I am indebted to the work of Mr. G. G. Copeland in 1909, published in the report of the Biological Stations of Canada "Contributions to Canadian Biology, 1906–1910."

The only paper dealing with the algæ of this region of which I have any knowledge is Prof. D. C. Eaton's "List of Marine Algæ collected near Eastport, Maine, in August and September, 1873, in connection with the work of the United States Fish Commission," and, where his records are for Canadian stations and for species which I have not collected, I quote them here.

In many countries the marine algæ are of great economic importance, as food, as the source of food products such as isinglass, in the production of a "size" for textile fabrics, in the clarifying of beer and wines, as the source of iodine and potassium, in the manufacture of a very strong adhesive known as seaweed glue, in the production of a demulcent for use in relieving coughs, and as a fertilizer. Except that some are put to the last-mentioned use along the coast, and small quantities of dulse (*Rhodymenia palmata*) are gathered and dried for eating, the marine algæ are made no use of in Canada, and therefore represent one of our undeveloped resources.

1.—Cyanophyceæ.

Gomphospheria aponina, Kuetzing.—In brackish pool off Kitty's cove, St. Andrews, September 6, 1913.

Pleurocapsa fuliginosa, Hauck.—Common on sandstone conglomerate cliffs at high-tide mark in places moistened by dripping fresh water near the Biological Station. This species forms thin black coatings. This is the first Canadian record.

Dermocarpa prasina, Bornet and Thuret.—On *Petrocelis cruenta* at Head harbour, Campobello island, June 12, 1912. Not previously recorded from Canada.

Hyella caespitosa, Bornet and Flahault.—Common in dead shells of *Mya arenaria* in the vicinity of St. Andrews. It imparts a yellowish-green colour to the shells. This is one of the perforating algæ, and in studying it the calcareous matter of the shell must be dissolved out with Perenyi's fluid, which is made up as follows: 10 per cent nitric acid—40 cc., ethyl alcohol—30 cc., and ½ per cent aqueous solution of chromic acid—30 cc.

Oscillatoria laetevirens, Crouan.—On old wharf near St. Stephen, at about ¾ flood-tide mark, May 13, 1913.

Oscillatoria nigro-viridis, Thwaites.—In a brackish pool flooded only by the very highest tides, at Welchpool, Campobello island, June 17, 1912. This is the first record for this species in Canada.

Spirulina subsalsa, Oersted.—In brackish pool flooded only by highest tides at Welchpool, Campobello. On rocks near low tide mark, Leonardville, Deer island. On wharf at the Biological Station. These are the first Canadian records.

Lyngbya aestuarii, Liebman.—In a brackish pool at Welchpool.

Nodularia harveyana, Thuret.—In lagoon in salt marsh, St. Andrews, June 6, 1912. This is the first Canadian record.

Anabaena variabilis, Kuetzing.—In brackish pool flooded only by highest tides, Welchpool, June 17, 1912. Not previously recorded from Canada.

Calothrix confervicola, Agardh.—Common on *Cladophora flavescens* floating in Kitty's cove, St. Andrews, August 28, 1913.

Rivularia atra, Roth.—Forming black gelatinous nodules on sandstone conglomerate cliffs at high-water mark in places where the cliffs are moist with dripping fresh water, near the Biological Station.

2.—Chlorophyceæ.

Ulothrix flacca, Thuret.—Common on rocks, timbers and moorings and on *Fucus vesiculosus* throughout the region.

Ulothrix implexa, Kuetzing.—Common on sandstone rocks at high-tide mark in places moistened by dripping fresh water, near the Biological Station. In estuary of a small stream flowing into Brandy cove.

Enteromorpha percursa, J. G. Agardh.—In lagoon in salt marsh near St. Andrews, May 11, 1912. On dead twigs, etc., in estuary of a small stream into Brandy cove.

Enteromorpha crinita, J. G. Agardh.—In lagoon in salt marsh near St. Andrews. In estuary of a small stream into Brandy cove. Rolled up in long rope-like masses at the edge of Kitty's cove. Not previously recorded from Canada.

Enteromorpha compressa subsimplex, J. G. Agardh.—In tide-pools at Adam island. In tide-pools on the Short Bar, St. Andrews. One of these tide-pools is shown in Fig. 1, Plate VIII.

Enteromorpha minima, Naegeli.—On rock in tide-pool in Chamcook harbour. On sandstone rocks at high-tide mark in places where moistened by dripping fresh water, in Brandy cove and near Joe's point.

Enteromorpha micrococca, Kuetzing.—Common on sandstone cliffs where moist with fresh water at high-side mark near the Biological Station.

Enteromorpha intestinalis, Greville.—In a tidal creek near St. Andrews. This habitat is shown in Fig. 2, Plate VIII. Extremely abundant in tidal creek at Grand Harbour, Grand Manan. An extremely small form, with the largest thalli only 3 mm. in diameter, was found in a pool in the cliffs of Swallow-tail, Grand Manan, about sixty feet above high-tide mark, and only reached by spray which flies to a great height at this point.

Enteromorpha linza, J. G. Agardh.—Common on muddy gravel beach at half-tide mark on Adam island. On weir stakes at low-tide mark off Navy island. On weir stakes in Brandy cove.

Ilea fulvescens, J. G. Agardh.—On rocks in stream in littoral zone, Brandy cove. In rock pool reached only by the very highest tides, Biological Station.

Monostroma fuscum blyttii, Collins.—Common in tide-pools at all outside points. In a stream of salt water flowing, at low tide, out of Kitty's cove. Some of this species was served on the table at the Biological Station, and it was found to resemble a very strongly flavoured and rather slippery spinach.

Ulva lactuca rigida, Le Jolis.—Common from half-tide mark down on rocky beach at Welchpool, and at Grand harbour, Grand Manan.

Chaetomorpha melagonium rupincola, Kjellman.—In a tide-pool near low-tide mark at Herring cove, Campobello.

Chaetomorpha aerea linum, Collins.—In curled masses in pool off Kitty's cove, St. Andrews.

Rhizoclonium riparium polyrhizum, Rosenvinge.—At base of sandstone cliffs near high-tide mark in Brandy cove. On dead twigs in estuary of a little stream into Brandy cove, exposed from one-quarter ebb tide. In pool in cliffs of Swallow-tail, Grand Manan, about sixty feet above high-tide mark.

Rhizoclonium tortuosum, Kuetzing.—In tide-pools at Upper Green point.

Cladophora laetevirens, Harvey.—In sub-littoral zone on weir stakes in old weir off Navy island, June 8, 1912. This is the first Canadian record.

Cladophora rupestris, Kuetzing.—Common on rocks near low-tide mark at all outside points.

Cladophora gracilis expansa, Farlow.—In shallow tide-pools on the Short Bar, St. Andrews.

Cladophora flavescens, Kuetzing.—Floating in large yellowish masses in Kitty's cove, St. Andrews.

Spongomorpha arcta, Kuetzing.—Common in spring in tide-pools throughout the region, occurring in rounded tufts.

Spongomorpha spinescens, Kuetzing.—On *Fucus evanescens* in littoral zone at Head harbour, Campobello. This species has not been previously recorded from Canada.

Hormiscia penicilliformis, Fries.—On *Fucus evanescens,* Little Letite.

Gomontia polyrhiza, Bornet and Flahault.—Common on dead shells of *Mya arenaria* in shallow tide-pools.

Vaucheria thuretii, Woronin.—On mud at high-tide mark, Harbour de Loutre, Campobello. On mud in salt marsh, Friar's bay, Campobello. On mud-flats at Grand harbour, Grand Manan.

3.—PHÆOPHYCEÆ.

Phyllitis fascia, Kuetzing.—Common in tide-pools throughout the region.

Scytosiphon lomentarius, Agardh.—Common in a small form with few constrictions in tide-pools at inside points. Common in a large form with many well-marked constrictions in tide-pools from half-tide mark down at outside points. A large form twisted into tight spirals occurs at Welchpool, Campobello. This spiral form is mentioned by Eaton as occurring at Eastport, Me.

Desmarestia aculeata, Lamx.—In upper sub-littoral zone at Welchpool. In tide-pools near low-tide mark at Herring cove, Campobello.

Desmarestia viridis, Lamx.—Common in sub-littoral zone on Tongue shoal, near St. Andrews. Off Navy island in sub-littoral zone on weir brush. In tide-pool at low-tide mark at Little Letite.

Dictyosiphon foeniculaceus, Grev.—Common in tide-pools throughout the region.

Dictyosiphon hippuroides, Aresch.—On rocky shore near low-tide mark at Welchpool, Campobello.

Ectocarpus confervoides, Le Jolis.—On *Ascophyllum nodosum* at the Biological Station. On weir brush in old weir off Navy island, unilocular and pleurilocular sporangia present June 8.

Ectocarpus littoralis, Lyngbye.—Common on weir brush off Navy island, at and below low-tide mark. On old weir stake in Warwig river.

Leathesia difformis, Aresch.—On *Cladophora gracilis expansa* in tide-pools on Short Bar, St. Andrews. On rocks near low-tide mark, Spruce island.

Elachistea fucicola, Fries.—On *Fucus evanescens* at Head harbour, Campobello. On *Ascophyllum nodosum* in Brandy cove. On *Fucus vesiculosus* on Navy island. On *Fucus furcatus* on Bliss island.

Chordaria flagelliformis, Agardh.—Common in tide-pools.

Ralfsia verrucosa, Aresch.—Common in tide-pools, forming black leathery expansions on pebbles.

Ralfsia deusta, J. Agardh.—On rocks in tide-pools on Short Bar, St. Andrews.

Chorda filum, Linn.—Attached to stones at low-tide mark at Biological Station. Common in sub-littoral zone off Head harbour, off Spruce island, and in the Narrows.

Laminaria saccharina, Lamx.—Common at and below low-tide mark throughout the region.

Laminaria longicruris, De La Pyl.—Common in sub-littoral zone off Head harbour. Common in sub-littoral zone at Welchpool, off Richardsonville, Deer island, off Herring cove, Campobello, and off Southern head, Grand Manan. This alga attains a larger size than any other in this region. The specimen shown in Fig. 3, Plate VIII, hanging on the wall of the residence at the Biological Station, had a blade five feet ten inches long and a stipe nine feet long.

Laminaria digitata, Lamx.—In tide-pools near low-tide mark on Spruce island. In tide-pools near low-tide mark at Head harbour.

Saccorhiza dermatodea, De La Pyl.—Common in upper sub-littoral zone at Welchpool.

Agarum turneri, Post. and Rupr.—Fairly common in the lower littoral and upper sub-littoral zone throughout the region.

Alaria esculenta latifolia, Post and Rupr.—Common at low-water mark at all outside points. Fig 4, Plate VIII, shows the lateral leaflets upon which the fruit is borne.

Ascophyllum nodosum, Le Jolis.—Abundant in the upper two-thirds of the littoral zone throughout the region. Fig 5, Plate VIII, shows the rocks near the Biological Station covered with this species and *Fucus vesiculosus*.

Fucus vesiculosus, Linn.—Abundant in the upper half of the littoral zone throughout the region. A form with very long vesicles and long receptacles occurs at the Biological Station, and a form with almost spherical receptacles is common on Adam island.

Fucus evanescens, *Agardh*.—Common in the lower half of the littoral zone at all outside points.

Fucus furcatus, Agardh.—Rare in a tide-pool near low-tide mark at Head harbour. Scarce in tide-pools at half-tide mark on Adam island. Common near low-tide mark on Bliss island.

4.—Rhodophyceæ.

Porphyra umbilicalis, J. Agardh.—Common in the littoral zone. Occurs in two forms, the umbillicate form of a brownish colour at outside points, and the expanded, laciniate form of a red or pale pinkish-green colour at inside points.

Petrocelis cruenta, J. Agardh.—On rocks at Head harbour and at Welchpool, in the littoral zone.

Hildenbrantia rosea, Kuetzing.—Common on stones in the lower part of the littoral zone throughout the region.

Callithamnion rothii, Lyngbye.—Reported from Grand Manan by Eaton.

Callithamnion pylaisaei, Mont.—Common on weir brush in the sub-littoral zone off Navy island. Cystocarps present, May 22.

Ptilota elegans, Bonnem.—Reported by Eaton from tide-pools on Campobello, and from Little Green island near Grand Manan.

Ptilota serrata, Kuetzing.—Dredged in 10 fathoms off Pendleton's island, in 27 fathoms off Harwood island, in 30 fathoms off MacMaster's island, and in 12 fathoms off Three islands, Grand Manan. One specimen found growing in a tide-pool at low-tide mark on the Black Ledges.

Ceramium rubrum, Agardh.—In tide-pools on Bliss island, and on Grand Manan.

Halosaccion ramentaceum, Agardh.—Common in lower littoral zone at Welchpool and in littoral zone at Herring cove, Campobello, and Grand harbour, Grand Manan. This species varies greatly in amount of branching.

Halosaccion ramentaceum gladiatum, Eaton.—Common at low-tide mark on Spruce island, mostly red and but little inflated. Frequent at low-tide mark in Little Letite, very large, brownish and much inflated. Scarce on the Black Ledges, rather small and but little inflated, red in young stages, brownish in older stage. Common on muddy gravel beach on Adam island. This variety was described by Eaton from Eastport material. Neither this form, nor the species are found at any inside point.

Ahnfeltia plicata, Fries.—Reported from Grand Manan by Eaton.

Cystoclonium purpurascens, Kuetzing.—Reported from Grand Manan and Campobello by Eaton.

Gigartina mamillosa, Agardh.—Common on rocks at low-tide mark throughout the region.

Chrondrus crispus, Stack.—Frequent in tide-pools in lower half of littoral zone at the Biological Station. Common in lower littoral zone at Welchpool and at Herring Cove.

Rhodomenia palmata, Greville.—Common near low-tide mark at all outside points. The only record for an inside point is one specimen found on weir brush below low-tide mark off Navy island.

Rhodophyllis veprecula cirrhata, Harvey.—Reported from Campobello and Grand Manan (under the name *Calliblepharis ciliata*) by Eaton.

Polyides rotundus, Greville.—Scarce in the sub-littoral zone at Head harbour.

Euthora cristata, J. Agardh.—Reported by Eaton from Campobello and Grand Manan.

Delesseria sinuosa, Lamx.—On *Ptilota serrata* dredged in 27 fathoms off Harwood island. Common on the Tunicate, *Caesira canadensis*, on weir brush in sub-littoral zone off Navy island. Dredged in 12 fathoms off Three islands, Grand Manan.

Rhodomela subfusca, Agarth.—In tide-pools on Bliss island.

Polysiphonia urceolata formosa, Agarth.—Common on weir brush at and below low-tide mark off Navy island. Scarce on rocks at low-tide mark at Head harbour.

Polysiphonia fastigiata, Greville.—Common on *Ascophyllum nodosum* throughout the region.

Corallina officinalis, Linn.—Common at low-tide mark on Spruce island, at Head harbour and on Grand Manan. Scarce on rocks in a tide-pool near low-tide mark on Short Bar near St. Andrews.

Melobesia lejolisii, Rosanoff.—Common on *Zostera marina* in Kitty's cove, St. Andrews.

Lithothamnion polmorphum, Aresch.—Common in the sub-littoral zone throughout the region.

Lithothamnion fasciculatum, Aresch.—Dredged in the Narrows off Campobello and off Grand Manan.

EXPLANATION OF PLATE.

Plate VIII.

Fig. 1. Tide-pool on Short Bar, St. Andrews.
" 2. Tidal creek, the habitat of *Enteromorpha intestinalis*.
" 3. Specimen of *Laminaria longicruris*, Biological Station, St. Andrews.
" 4. Specimen of *Alaria esculenta latifolia*.
" 5. Rocks, at about half-tide, St. Andrews, covered with *Fusus vesiculosus* and *Ascophyllum nodosum*.

Fig 1 TIDE POOL ON SHORT BAR – ST. ANDREWS N.B.

Fig 3 LAMINARIA LONGICRURIS

Fig 4 ALARIA ESCULENTA LATIFOLIA

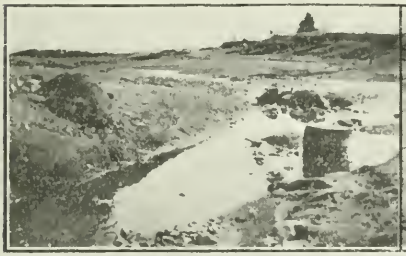

Fig 2 TIDAL CREEK – the habitat of ENTEROMORPHA INTESTINALIS

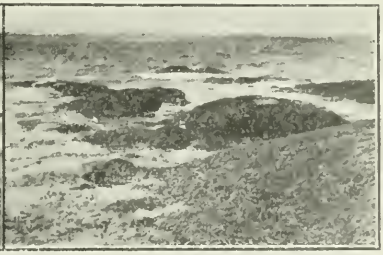

Fig 5 ROCKS ABOUT HALF TIDE, ST. ANDREWS, COVERED with FUCUS VESCICULOSUS and ASCOPHYLLUM NODOSUM

ON SERIALLY STRIPED HADDOCK IN NEW BRUNSWICK.

BY

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Dominion Commissioner of Fisheries, Ottawa.

(With one Plate).

Interesting striped specimens of the common haddock (*Gadus aeglefinus*) have been brought at times to the Atlantic Biological Station, which are noteworthy on account of the contrast which they present to the usual type brought in by the fishermen. They exhibit a series of broad bands and blotches of dark pigment on each side of the body, from the shoulder to the tail. The specimens do not seem to be by any means rare in Passamaquoddy bay, adjacent to St. Andrews, where the Biological Station is situated, and they are of some interest in themselves, and of wider interest in connection with the coloration of fishes, and of animals generally.

The usual coloration of the haddock, to quote from Jordan and Evermann (1, page 2543) is "dark grey above, whitish below, lateral line black, a large blotch above the pectorals, dorsals and caudal dusky"; but the freshly-caught haddock exhibits other striking colour features. The dorsal surface is, indeed, usually of a metallic purplish hue, darkest in the upper portions, and becoming paler down the sides, where it merges in the pearly white colour of the throat and under-surface of the body. Immediately below the thin blackish lateral line a large sooty spot occurs, forming a prominent feature a little below the mid-portion of the high first dorsal fin (Plate IX., fig. 1). The black spot, variously called "Satan's thumb-mark," or "St. Peter's finger-mark," is about the size and shape of a large black thumb mark. In the drawings which illustrate this brief paper (Plate IX., figs. 2 and 3) it will be noticed that one specimen, fig. 2, shows no less than six "thumb marks," or dark blotches, while the other (fig. 3) shows traces, more or less distinct, of four transverse stripes. The first specimen, measuring 11 in. (279 mm.) from snout to base of tail fin, *i.e.*, the tip of the caudal trunk; or $11\frac{3}{4}$ inches to the free hind-border of the tail fin, exhibited three very prominent pigment patches, the most anterior being below the middle of the first dorsal fin, whose base measured $1\frac{5}{16}$-inch, and this patch was $\frac{9}{16}$-inch broad, and extended from the base of the fin above to the usual distance below the lateral line, terminating behind and above the pectoral fin. This patch appeared like the usual dark thumb-mark; but a paler extension continued upward to the contour line of the dorsum. It was the most deeply tinted patch in the series, and especially dense below the lateral line. The next large patch occurred below the mid-portion of the second dorsal fin, more faintly coloured, and exactly $\frac{3}{4}$ of an inch in breadth; the breadth of the fin above, along its base, being $2\frac{3}{8}$ inches. This second band passed down from the base of the fin to a considerable distance below the lateral line, indeed, down to a point within a quarter of an inch of the ventral contour line. The third large band, of a pale greyish tint, occurred between the mid-portion of the third dorsal fin (whose base is $1\frac{9}{16}$-inch long) and extends to a little distance below the lateral line. It was $\frac{11}{16}$-inch in breadth. Between these three major transverse stripes or bands there appeared minor patches, the first being merely a rounded pale greyish spot, $\frac{5}{16}$-inch across and occurring midway down the side of the body, a little distance below the curved lateral line, and above the position of the anus. The next minor patch, also about $\frac{5}{16}$-inch in diameter, occurred on the lateral line, partly above

and partly below, and midway between the dorsum and the anterior margin of the second anal fin below. Some obscure pigment above the patch suggests that it was really an interrupted transverse band passing from the posterior eighth of the second dorsal fin and extending, as just stated, to a point below the lateral line. Lastly, a third minor patch of blackish grey extending from the anterior margin of the upper caudal fin lobe reached almost to the lateral line. It was a pale, irregular patch about ¼-inch across. The three marked major stripes, and the three more obscure minor spots, formed a series of six dark patches from the shoulder to the tail.

The second specimen (Fig. 3) was larger than the haddock just described, being 15 in. long (406 mm.), inclusive of caudal fin. Exclusive of the tail-fin it measured 14 in. (354 mm.), from tip of the snout to tip of caudal trunk. Along each side of the fish were four transverse bands or patches of dark pigment, the breadth of each being respectively, first stripe, 11/16-inch; second stripe, ⅝-inch; third stripe, ½-inch; and the fourth stripe or patch, ⅜-inch. The length of the base of each of the three dorsal fins was, respectively, 2½-inch, 2⅝-inch, and 2½-inch. The first dark patch extended from the middle of the base of the first dorsal fin to the lateral line, and spread downwards to a point midway between the lateral line and the ventral contour of the fish. The second patch, extending from the middle of the base of the second dorsal fin almost to the anterior edge, was very pale, and passed over the lateral line to a point midway between that line and the anus. Both these bands or patches were darker below the lateral line than above it, and the first band was very dark in its lower portion. The third band, extending over the anterior half of the base of the third dorsal fin, passed downward as a tongue-shaped patch to the lateral line, and just beyond it, while the fourth band appeared simply as a rounded indefinite blotch, in front of the dorsal portion of the caudal fin, and passing barely to the lateral line. In this haddock three of the four bands clearly correspond to the three major patches in the first specimen, and in position and shape each series closely resembled the other, while the last patch on the dorsal portion of the caudal trunk in each also showed close resemblance; but the two extra minor blotches in the first specimen did not seem to be represented in the second. It is interesting to recall the fact that a closely related species, the European bib or pout (*Gadus luscus*) frequently exhibits cross bands along the sides, in addition to "a black axillary spot behind the base of the pectoral fin," according to Dr. Gunther (2, p. 541). Dr. H. C. Williamson, in his masterly and thorough paper on the specific characters of *G. luscus* and other Gadoids (8, p. 137), states that the axillary mark "is a large blue-black patch covering the sides of the axilla, and extending out on the clavicle and over the base of the pectoral fin," and it is present in *G. minutus* and *G. esmarkii*, but is much more limited in area.

Professor W. C. McIntosh gave an interesting account, seven or eight years ago, of some young specimens of the European bib, *Gadus luscus*, showing bold transverse bars of pigment (3, pp. 153-154); but he pointed out that specimens captured in the nets of the shrimp-trawlers, at the mouth of the Thames, were not banded, and he referred to the view of Couch and Malm that the striped condition is an occasional occurrence only. Professor McIntosh's small barred specimen was only about 2⅘ inches (70 mm.) long, and was obtained on April 3, 1908, at St. Andrews, Scotland. The fish was of a reddish brown colour on the sides, variegated by four well-marked broad black bands (Plate IX., fig. 4). A broad stripe passed from the dorsum, between the first and second dorsal fin, down the side to the ventral border; while the second band, darker and more definite, extending from the last third of the second dorsal fin to the base of the third dorsal fin, passed diagonally down to the posterior part of the base of the first anal fin. The last stripe covered the side of the caudal trunk from a line drawn to the hind margin of the second anal, from the hind margin of the third dorsal fin. On the top of the head occurred a large dark patch, and the dorsal and ventral edges of the body showed much black pigment; and black spots occurred in the dorso-lateral region, and minute specks upon the fins. An upper opercular patch, and

a patch at the base of the pectoral fin also were discernible. Similarly four dark stripes were observed in a larger specimen of *Gadus luscus* (193 mm.) 7¾ inches long, described by Professor McIntosh. The first stripe occurred in the shoulder region, passing from the front of the first dorsal fin, and including its anterior third, and extending to the pectoral fin. The second stripe passed ventrally from a point anterior to the middle of the base of the second dorsal fin, while the third stripe, or belt, spread diagonally downward from the posterior third of the second dorsal fin to the ventral border of the trunk. Only traces were discernible of the fourth patch or stripe, on the surface of the caudal trunk near the base of the tail.

What is the meaning of this phenomenon? How can the occasional appearance of definite serial stripes or patches be accounted for, in species of fish and other animals in which normally they are absent? It would be interesting to trace out embryologically the development of a banded or barred arrangement in the external coloration of fishes, and to point out examples, discovered in recent years, of larval and post-larval arrangements of pigment in the integument; but in this paper the attempt will not be made, and a few salient points alone will be set forth. Most people familiar with our common food fishes have asked the question, "What is the explanation of the black thumb-mark on the shoulder of the haddock?" Why do not closely related fishes such as the cod, pollock, and other species, exhibit similar dark patches or spots? The English whiting (*Gadus merlangus*) does show a patch of black at the base of the pectoral fin or rather in the axil of the fin, and the post-larval stage 1⅛-inch (28 mm.) long, shows thirteen or more spots or partial stripes of black along the dorsum, as Professor McIntosh has described and figured, 4, p. 17, *vide* Plate IX., fig. 5. Dr. Gunther pointed out (2, p. 540) that in Greenland, Iceland, and Northern Scandinavia, the common cod exhibits a large irregular blotch of black pigment on the side; but the absence of striking dark patches in species closely related, as just stated, can only be explained on the ground that such stripes are of little utility, and that a barred coloration is not essential to the welfare of the fish. There are many living creatures to which a patched or banded condition appears to be of vital importance. Spots and stripes have been proved to be of value for protective purposes, especially for concealment, but such purposes cannot be served by the presence of dark bands along the body in the haddock or bib, and any key to the origin and meaning of such coloration must be sought more remotely. There can be little doubt that the significance of these serial stripes is ancestral. Beddard called attention to the fact (6, p. 19) that among segmented creatures, like worms, caterpillars, etc., we find a pattern of coloration conforming exactly to the segmentation of the body. Rings of colour correspond to the rings of the body. Now, in their earliest larval condition young fishes have a long cylindrical body, like a worm or eel, and it shows division into segments or serial body-rings, called metameres. May it not be the case that the bars or serial patches of colour primitively correspond to the muscle-segments, the myotomes or metameres?* If a segmented body be typical of the ancestral form of animals, there is strong presumption that repeated spots and stripes along the surface of the body may be ancestral also. As I ventured to point out in a paper on this subject of "Animal Coloration" (7, pp. 154-155): "In some flat fishes the bars along the sides of the body divide into spots or large patches, four rows of them, and still preserving their metameric or serial succession from the head to the tail. Thus from successive cross-stripes the spots arise, and these surface arrangements of colour continue long after the internal organs, the muscles, etc., have wholly altered their original anatomical arrangement. Further, the successive series of spots may unite later as longitudinal stripes, and such stripes we find in the post-larval ling (*Molva*)." We have thus a key to the arrangement of

*The late Professor J. A. Ryder said (Embryography of Osseous Fishes, U.S. Fish Comm. Rep. 1882, Washington, 1884, p. 502): "The pigment cells are stellate, and exhibit a slow amoeboid or migratory movement as development proceeds, becoming aggregated at a later period by this means into patches upon definite regions of the body."

colour in a vast number of animals. Professor McIntosh's description of the young cod is interesting: "The minute larval cod escapes from the egg," says that authority, "marked by a series of transverse bars, then the black pigment is re-arranged longitudinally along the dorsum as it swims high in the water. To this is added, by and by, yellow pigment, causing (with the black) a greenish hue. When it seeks the rocky margins it becomes boldly tessellated. . . . . the larval haddock has no transverse bars, though bred side by side with the cod; but the dorsal band of black pigment is developed in the next stage (post-larval). Instead of seeking the shore the little haddock keeps to deep water, and it soon develops the characteristic bold touches of black on the sides above the pectoral region." (5, p. 237.)

But the presence of stripes or transverse bars of colour is not confined to pelagic larval fishes out in the open sea, like cod, etc., for even familiar shore fishes in their young stages often show this striking arrangement of pigment. Thus I find in the common cunner, or sea perch (*Tautogolabrus adspersus*) so abundant along our eastern shores, the young forms exhibit the transverse bars, eight or nine dark ochre bands richly spotted with black dots, extending from the head region to the base of the tail, when the fish is barely half-an-inch long (13.5 mm.). See Plate IX., fig. 8. The young salmon of the Pacific and Atlantic rivers, as is well known, show definite stripes. The young sockeye or red salmon, *Oncorhynchus nerka,* seven months old, shows eleven to twelve bars, and the Atlantic salmon parr, *Salmo salar,* shows nine or ten such bars or stripes. (Plate IX., figs. 6 and 7). The pigment spots, of which these coloured bands and patches are composed, are rounded particles of naked protoplasm, packed with coloured granules and capable of contracting and expanding in stellate form. The centre or nucleus is often more deeply coloured than the rest of the corpuscle. A group of such pigment corpuscles or cells from the skin of a young fish $\frac{1}{3}$ of an inch long (a larval *Gastrosteus aculeatus* 8·9 mm.) are shown on Plate IX., fig. 9. These coloured particles move with such facility under the influence of light or electrical, chemical and nervous stimuli, that the arrangements of colour may undergo very rapid changes. The tranformation of spots into bars, by serial aggregation, or the separation of transverse stripes into separate rounded patches, can be readily understood. But the most interesting point that arises in connection with these striped haddocks is this, that they demonstrate the resumption at times of an arrangement of colour, which must have ancestrally applied to the species as a whole; but now appears only erratically and locally. The causes of such ancestral reminiscence are obscure and little understood. Ancestral traits, long lost, even amongst human beings, occasionally reappear, and amongst such fishes as the haddock, an ancestral, long-lost arrangement of external coloration is revived at times, and may even become marked as a not infrequent local variation as in the striped Passamaquoddy haddocks.

The black stripes have disappeared altogether in the adult cod; but a remnant persists in the ordinary haddock as a black blotch in the shoulder region, the dark "thumb-mark." Such blotches or thumb-marks, when repeated serially, must be regarded therefore as atavistic, a reappearance of an ancestral trait or feature, which in most specimens has practically disappeared.

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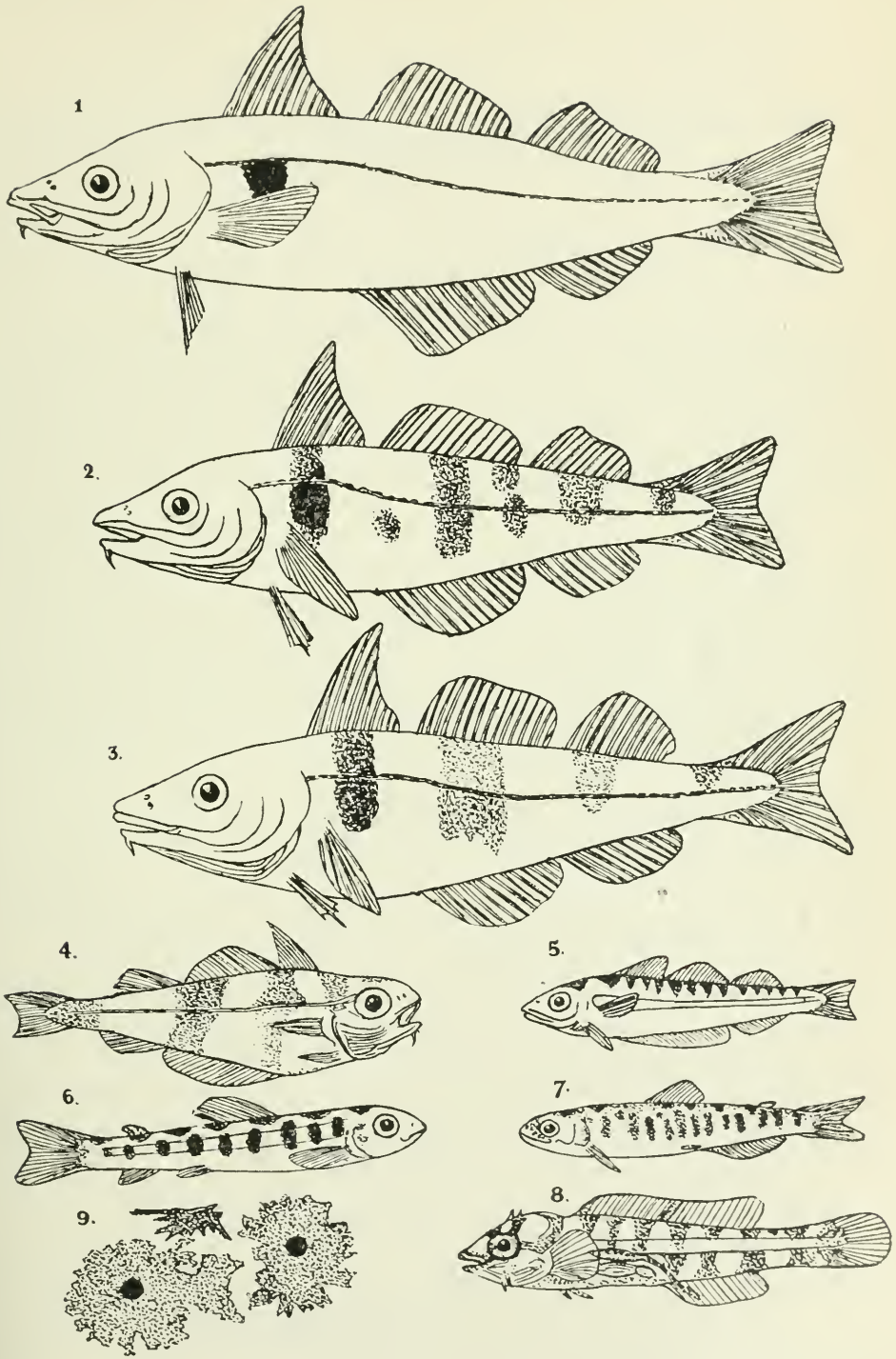
EXPLANATION OF PLATE.

Plate IX.

Fig. 1. Haddock, *Gadus aeglefinus*, showing usual "thumb-mark."
" 2. Haddock, *Gadus aeglefinus* (11¾-inch long), with six transverse bars or thumb-marks.
" 3. Haddock, *Gadus aeglefinus* (15-inch long), with four transverse bars or thumb-marks.
" 4. European Bib, *Gadus luscus* (2⅘-inch long), with four transverse bars, after W. C. McIntosh.
" 5. European Whiting, *G. merlangus* (1¾-inch long), with thirteen partial bars.
" 6. Atlantic Salmon parr, *Salmo salar*, with nine lateral patches enlarged one-third.
" 7. Pacific Sockeye salmon parr, *Oncorhynchus nerka*, eight months old, with 12 or 14 lateral patches, somewhat enlarged.
" 8. Cunner or Sea Perch, *Tautogolabrus adspersus* (½-inch long), with nine lateral bars.
" 9. Black Chromatophores or pigment spots in the skin of the Stickleback (*G. aculeatus*).× 250.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SESSIONAL PAPER No. 38a

NOTES ON THE PHYTO-PLANKTON OF THE BAY OF FUNDY AND PASSAMAQUODDY BAY.

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In previous publications relating to the Diatoms of New Brunswick and Prince Edward Island, fairly complete lists of these, as found at a series of localities along the Atlantic coast, have been given, but no attempt has been made to distinguish between littoral or neritic and deeper water or planktonic forms, or to show the relations of either of these to differences of season and environment. Yet it is obvious that, as with other plants, such varying relationships do exist, and as their varying abundance must directly affect the food supply of the different animals, such as young fishes, oysters, etc., which feed upon them, as complete a knowledge as possible upon these points is highly desirable.

The present notes are intended mainly to apply to the Phyto-Plankton of the bay of Fundy and Passamaquoddy bay, though occasional references are made to points on the north shore of New Brunswick and to Prince Edward Island. Moreover, as the line between planktonic and non-planktonic forms is ill-defined, species ordinarily regarded as neritic are not unfrequently met with far from shore, and may even constitute a considerable part of any planktonic gathering. In the following pages, lists of such gatherings from numerous localities are given for the various months of the year, excepting December, for which latter month no data are yet available.

I. SEASONAL AND DISTRIBUTIONAL VARIATIONS IN THE PHYTO-PLANKTON.

(*a*) *January.*

The following records were made during this month:—

Biological Station, January 1.

Chætoceras decipiens, Cleve. Abundant.
Biddulphia aurita, Breb.
Coscinodiscus eccentricus, Ehr.
A fine Radiolarian (*Actinophrys?*).

Chance Harbour, January 12.

Diatoms few, mainly—
Coscinodiscus eccentricus, Ehr.
Actinoptychus undulatus, Kutz.
Chætoceras decipiens (few).
Biddulphia Mobilensis, Bailey.

Bald Head, January 15.

Biddulphia Mobilensis, Bail.=*B. Baileyi,* Sm.
Coscinodiscus eccentricus, Ehr.
Chætoceras decipiens, Cleve. = *Ch. sociale,* Land.
Skeletonema costatum, Grev.
Fragillaria.

Wilson's Beach, January 16.

Biddulphia Mobilensis, Bail.
Coscinodiscus eccentricus, Ehr. Common.
Rhizosolenia setigera, Br.

Friar's Bay, Campobello, January 26.

Diatoms few.
Chætoceras decipiens, Cleve.

Head Harbour, Campobello, January 27.

Biddulphia Mobilensis, Bail.
Coscinodiscus eccentricus, Ehr.
" *concinnus*, W. Sm.
Chætoceras decipiens, Cleve.
" *boreale*, Bail. Rare.
Rhizosolenia setigera, Br.

St. John Harbour, January 27.

Diatoms few.
Biddulphia Mobilensis, Bail.
Actinoptychus undulatus, Kutz.
Coscinodiscus eccentricus, Ehr.
Paralia sulcata.
Rhizosolenia setigera, Br.

Seely's Cove, January 31.

Biddulphia Mobilensis, Bail.
Coscinodiscus asteromphalus, Ehr.
" *concinnus*, W.S.
Chætoceras decipiens. Rare.
Rhizosolenia setigera, Br.

Friar's Bay, Campobello, January 30.

Cocconeis scutellum, Ehr. In clusters on algæ. Abundant.

Letite.

Thalassiosira sociale. One specimen only.

Lepreau, January 29. Water temperature, 33° F.

Biddulphia Mobilensis, Bail.
Pleurosigma formosum, W.S.

(*b*) February.

The Plankton during this month is much richer, both in number and variety, than that of the preceding month. The following observations have been made:—

St. Andrews Harbour, February 19.

Chætoceras decipiens, Cleve.
" *sociale*.
Coscinodiscus eccentricus, Ehr.
" *radiatus*, Grun.
" *asteromphalus*, Ehr.
" *concinnus*, W.S.
Biddulphia aurita, Breb.
" *pulchella*, Gr.

Melosira subflexilis, Kutz.
Pleurosigma decorum, Sm.
" *formosum*, W.S.
" *strigosum* (?) W.S.
Rhizosolenia setigera, Br.
Paralia sulcata.
Skeletonema costatum, Grev.
Thalassiosira Nordenskioldii, Cleve.

Biological Station, St. Andrews, February 27.
Biddulphia aurita, Breb.
Actinoptychus undulatus, Ehr.
Chætoceras sociale, Land.
" *decipiens*, Cl.
Coscinodiscus eccentricus, Ehr.
Grammatophora marina, Kutz.
Pleurosigma fasciola, Sm.
" *decorum*.
Thalassiosira Nordenskioldii, Cleve.
Thalassiothrix.
Rhizosolenia setigera, Br.

Manawagonish, St. John County, N.B., February 5.
Coscinodiscus eccentricus, Ehr.
Ditylum Brightwellii, Grun.
Rhizosolenia setigera, Br.
Skeletonema costatum, Grev.
Thalassiosira nitschioides.

St. John, Reversing Falls, February 14. Temperature, 32° F.
Actinoptychus undulatus, Ehr.
Biddulphia Mobilensis, Bail.
Coscinodiscus asteromphalus, Ehr.
" *eccentricus*, Ehr.
" *radiatus*, Ehr.
Melosira subflexilis, Kutz.
Pleurosigma formosum.
" *fasciola*, W.S.

(*c*) *March*.

St. Andrews, N.B., West Light, March 17.
Chætoceras decipiens, Cleve.
" *sociale*.
Coscinodiscus concinnus, W.S., with chromatophores.
Biddulphia aurita, Breb.
Pleurosigma.
Thalassiosira Nordenskioldii, Cleve.

Joe's Point.
Biddulphia aurita, Breb.
" *pulchella*.
Chætoceras decipiens, Cleve.

Coscinodiscus asteromphalus, Ehr.
" *concinnus*, W.S.
" *radiatus*, Grun.
Melosira subflexilis, Kutz.
Rhizosolenia setigera, Br.

Doucett's (Dochet) Island, March 27.

Chætoceras decipiens, Cl.
" *sociale*.
Coscinodiscus eccentricus, Ehr.
Biddulphia pulchella.
" *aurita*, Breb.
Pleurosigma.
Thalassiosira Nordenskioldii, Cl.

St. Croix River, at mouth, March 28.

Diatoms abundant.
Biddulphia aurita, Breb. Common.
" *pulchella*, Gray. Common.
Chætoceras decipiens, Cl.
Coscinodiscus concinnus, W.S. Common.
" *asteromphalus*, Ehr. Common.
" *radiatus*, Grun. Rare.
Fragillaria capucina, Desm.
Melosira varians, Ag.
Rhizosolenia setigera, Br.
Thalassiosira Nordenskioldii, Cl.

Doucett's (Dochet) Island, March 27.

Chætoceras decipiens, Cl.
" *sociale*.
Coscinodiscus eccentricus, Ehr.
Biddulphia pulchella, Gray.
" *aurita*, Breb.
Pleurosigma.
Thalassiosira Nordenskioldii, Cleve.

St. Andrews Harbour, March 4.

Biddulphia aurita, Breb.
Chætoceras decipiens, Cl.
" *sociale*, Land.
Coscinodiscus asteromphalus, Ehr.
Melosira Jerghensii, Ag.
Pleurosigma.

Letite, March 28.

Biddulphia aurita, Breb. Common.
" *pulchella*, Gray. Abundant.
Coscinodiscus asteromphalus, Ehr. Common.
" *concinnus*, W.S. Common.
Chætoceras decipiens, Cl. Common.
" *boreale*, Bail. Rare.

(*d*) *April.*

St. Andrews, April 19.

Biddulphia aurita, Breb.
" *pulchella,* Gray.
Coscinodiscus eccentricus, Ehr.
" *concinnus,* W.S.
Chætoceras decipiens, Cl.
" *sociale,* Land.
Fragillaria capucina.
Thalassiosira Nordenskioldii, Cl.

St. Andrews, April 9.

Actinoptychus undulatus, Ehr.
Chætoceras decipiens, Cl. Few.
Biddulphia aurita, Breb.
Coscinodiscus eccentricus, Ehr.
Ditylum Brightwellii, Grun.
Nitschia sigmoidea, W.S.
" *closterium.*
Melosira Jerghensii, Ag.
Pleurosigma fasciola, W.S.
" *intermedium,* and others.

St. Andrews Harbour, April 17.

Biddulphia aurita, Breb. Abundant.
Chætoceras decipiens, Cleve.
Coscinodiscus asteromphalus, Ehr., with Chromatophores.
Thalassiosira Nordenskioldii. Two varieties. Very abundant.

Similar forms are met with at Navy island, Little Douchet islands, Mill Cove, Eastport, Campobello, and other points.

(*e*) *May.*

Robbinston, Me., in the waters opposite the Biological Station, St. Andrews, N.B., May 23 and 25.

Biddulphia pulchella, Gray.
Chætoceras decipiens, Cl.
Coscinodiscus concinnus, Sm.
Fragillaria capucina, Desm.
Pleurosigma decorum. Rare.
" (indt.).
Rhizosolenia setigera, Br.
Thalassiosira Nordenskioldii, Cl. Common.

(*f*) *June.*

West Quoddy, June 17.

Actinoptychus undulatus, Kutz.
Coscinodiscus. Rare.
Cocconeis scutellum, Ehr.
Gomphonema marinum.
Grammatophora serpentina, Ehr.
" *marina,* Kutz. Common in chains.
Navicula.
Pleurosigma fasciola, W.S.
Rhabdonema arcuatum, Kutz.

Biological Station, June 28.

Actinoptychus undulatus, Kutz.
Biddulphia aurita, Breb.
Coscinodiscus eccentricus, Ehr.
Melosira Jerghensii, Ag.
Navicula distans.
" *viridis*, Kutz.
Pleurosigma Balticum, W.S.
" *fasciola*, W.S.
Tabellaria.
Stephanopyxis.
Nitschia closterium, W.S.
" *vermicularis*, Grun.
Rhabdonema arcuatum, Kutz.

(*g*) *July*.

St. Andrews, N.B., near Indian Point, July 7.

Biddulphia aurita, Breb.
Chætoceras.
Coscinodiscus.
Navicula.
Pleurosigma strigosum (?).
Nitschia sigma, Sm.
Rhabdonema arcuatum, Kutz.
Synedra.

Some *Protozoans* were found and determined in this July collection, viz.:—

Tintinnopsis. Common.
Amphorella subulata.
Rotalia.
Discorbina.
Spirillina (?).
Distephanus speculum.

Eastport, Me., July 29.

Skeletonema costatum, Grev.
Actinoptychus undulatus, Ehr.
Amphiprora alata, Kutz.
Thalassiosira Nordenskioldii, Cleve.
Chætoceras decipiens, Cl.
" *sociale*, Land.
Coscinodisus asteromphalus, Ehr.
" *concinnus*, S.M.
" *eccentricus*, Ehr.

(*h*) *August*.

Friar's Bay, Campobello, August 1.

Fragillaria capucina, Desm.
Chætoceras decipiens, Cl.
" *crinitum*, Schutt.
Nitschia seriata, Cl.
Rhoicosphenia curvata, Grun.
Rhizosolenia setigera, Br.
Skeletonema costatum, Grev. Rare.

Eastport, August.

Coscinodiscus asteromphalus, Ehr.
" *concinnus*, W.S.
Isthmia nervosa. Rare.
Grammatophora serpentina, Ehr.

West Quoddy.

Actinoptychus undulatus, Ehr.
Fragillaria.
Cyclotella.
Grammatophora marina, Kutz.
" *serpentina*, Ehr.

Chamcook Harbour.

Coscinodiscus asteromphalus, Ehr. Common.
" *concinnus*, W.S. Common.

White Horse.

Coscinodiscus eccentricus, Ehr. Common.
" *asteromphalus*, Ehr. Common.

St. Martins, August, 1910.

Amphora.
Amphiprora alata, Kutz.
Amphipleura sigmoidea, W.S.
Actinoptychus undulatus, Kutz.
Coscinodiscus eccentricus, Ehr.
Grammatophora marina, Kutz.
Melosira nummuloides, Ag.
" *Jerghensii*, Ag.
Navicula Smithi, Breb.
" *didyma*, Kutz.
" *rhyncocephala*, Kutz.
" *distans*.
Nitschia sigma, W.S.
" *sigmoidea*, W.S.
" *dubia*.
" *vermicularis*, Hautz.
Pleurosigma obscurum, W.S.
Plagiotropis vitrea, Grun.
Rhabdonema arcuatum, K.
Stauroneis salina, W.S.
Surirella striata.
" *ovalis*, Breb.
" *constricta*.
" *Molleriana* (?) Grun.
Synedra gracilis.
" *radians*, W.S.
Triceratium alternans, Bail.
Tryblionella.

L'Etang Harbour, August 10.

Coscinodiscus asteromphalus, Ehr. Very abundant.
Biddulphia Mobilensis, Bailey.
Chætoceras.

Cocconeis scutellum, Ehr. Rare.
" *placentula*, Ehr.
Grammatophora serpentina, Ehr.
Paralia (Melosira) sulcata.
Nitschia sigma, W.S.
Rhizosolenia setigera, Br.
Pleurosigma fasciola, Sm.
" *formosum*, W.S.
Skeletonema costatum, Grev.
Thalassiosira Nordenskioldii, Cleve.

Deadman's Harbour, August 10.

Chætoceras. Common.
Ditylum Brightwellii, Grun. Common.
Asterionella. Very rare.
Rhizosolenia setigera, Br.
Skeletonema costata. Common.
Thalassiosira Nordenskioldii, Cl.

Tynemouth Creek, St. John County, N.B., August.

Chætoceras.
Biddulphia Mobilensis (= *B. Baileyi*), in great numbers, making up the larger part of the plankton.
Coscinodiscus asteromphalus, Ehr.
" *radiatus*, Ehr.
Doryphora amphiceros, Kutz. (= *Raphoneis*).
Pleurosigma Balticum, Sm.
Actinoptychus undulatus.
Rhizosolenia setigera.
Navicula didyma.

Narrows of St. John River, New Brunswick, August 10.

Actinoptychus undulatus, Ehr.
Asterionella.
Amphiprora ornata, Bail.
Bacillaria paradoxa, Gmel.
Coscinodiscus minor, Ehr.
Doryphora Boeckii, W.S.
Gomphonema.
Campylodiscus cribrosus, W.S.
Cocconeis scutellum, Ehr.
Melosira nummuloides.
" *subflexilis.*
Navicula elliptica, K.
" *viridis*, Kg.
" *ovalis*, W.S.
Pleurosigma.
Synedra salina, W.S.
Surirella striatula, Turp.
Tabellaria fenestrata, Kutz.
Tryblionella.
Rhoicosphenia curvata, Grun.
Homœocladia sigmoidea, W.S.
Zygoceros (Biddulphia) Mobilensis, Bail.
Isthmia enervis, Ehr.

St. John Harbour and Docks, August.

Actinoptychus undulatus.
Amphiprora alata.
Acnanthes longipes.
" *subsessilis.*
Bacillaria paradoxa.
Biddulphia aurita. Common.
Cocconeis scutellum.
" *pediculus.*
Coscinodiscus radiatus.
" *minor.*
" *eccentricus.*
Cocconema cistula.
Cyclotella striata.
Gomphonema geminatum.
Melosira nummuloides.
" *Jerghensii.*
" *varians.*
Navicula didyma.
" *maculata.*
" *ovalis.*
" *distans.*
Nitschia closterium.
" *sigmoidea.*
" *vermicularis,* Hantz.
Orthosira marina.
Pleurosigma fasciola.
Rhabdonema arcuatum.
" *minutum.*
Surirella gemma.
Tryblionella gracilis.
Triceratium alternans.
Raphoneis (Doryphora) Boeckii.
" *amphiceros.*

(*i*) *September.*

"PRINCE" COLLECTION.

September 8. Station 17, Yarmouth Harbour; 7 fathoms.
Diatoms almost wanting in the plankton.

September 18. Station 5, Bay of Fundy, between Head Harbour and the Wolves; 51 fathoms.
Skeletonema. Abundant.
Nitschia seriata. Rare.
Coscinodiscus, with bright green chromatophores.

September 19. Station 20, Bay of Fundy, off St. John Harbour.
Diatoms few. Copepods abundant.

September 20. Station 21, Kennebecasis Bay, at east end of Long Island.
Copepods only.

September 21. Station 22, St. John River, near mouth of Kennebecasis River.
Melosira subflexilis.
Thalassionema.

September 21. Station 23, Bay of Fundy, between St. John and Digby, N.S.
Melosira subflexilis, in numerous chains and the only Diatom present excepting *Biddulphia Mobilensis,* rare. Copepods abundant.

September 22. Station 26, Annapolis Basin, above Annapolis.
A few *Coscinodisci* occurred.

September 23. Station 24, Bay of Fundy, between St. John and Digby.
No diatoms. Copepods only.

September 23. Station 25, Bay of Fundy, off Digby Gut.
No diatoms.

September 25. Station 26, Basin in river inside Annapolis Royal.
Rhizosolenia setigera abundant in fine groups. Copepods abundant.

September 26. Station 27, Annapolis River, near Goat Island.
Rhizosolenia setigera abundant, but no other diatoms present.

September 27. Station 28, lower end of Annapolis Basin.
Coscinodiscus.
Rhizosolenia setigera, with spear-like terminal spine.

(j) October.

October 3. Station 4, Passamaquoddy Bay.
Great quantities of *Synedra*-like cylinders dotted on margins. Supposed to be a variety of *Thalassionema.* Other forms wanting.

October 9. Station 6, St Croix River between the Biological Station and Robbinston, Me.
Same as Station 4.

October 16. Station 10, Eastern Entrance to St. Andrews Harbour.
Ditylum. Abundant, with chromatophores.
Chætoceras decipiens.
Coscinodiscus eccentricus. Rare.
Rhizosolenia setigera.

October 2. Station 6, St. Croix River.
Coscinodiscus asteromphalus.
" *radiatus.*
Ditylum. Rare.
Thalassionema (?).

October 19. Station 19, St. John Harbour.
Biddulphia Mobilensis, in chains.
Coscinodiscus. Rare.
Rhizosolenia setigera.

October 3. Station 9, Off Grand Manan.

Coscinodiscus eccentricus.
Chætoceras decipiens. Rare.
Ditylum. Common.
Rhizosolenia setigera. Common.
Thalassionema (?). Very abundant.
Copepods few.

October 9. Station 10, St. Andrews Harbour.

Principally *Thalassionema.* Abundant.
Chætoceras decipiens.
Ditylum. With fringed extremities. Rare.
Rhizosolenia setigera.
Copepods few.

October 27. Station 25, Bay of Fundy, off Digby Gut.

Chætoceras decipiens.
Thalassionema. Abundant.
Copepods, etc. Abundant.

II. NOTES ON THE MORE CHARACTERISTIC GENERA.

Acnanthes.—Though the species of this genus are usually attached by a stipe, and therefore not strictly planktonic, they are still not unfrequently found as isolated frustules or small chains in planktonic gatherings. The most common species is *A. subsessilis,* found along with *A. longipes* in St. John harbour in August, and near Grand Manan, also in Passamaquoddy bay and the St. Croix river. The genus is more common on the north shore of New Brunswick.

Actinoptychus.—Like most genera of circular form, this genus is free-floating, and though nowhere very abundant, is widely distributed. The only species is *A. undulatus.* It was found in Chance harbour, in January; at the Biological Station, February 19, in the reversing Falls, St. John, February 14, near St. Andrews, April 9, West Quoddy, June 17, Biological Station, June 28, West Quoddy, August 1, St. Martin's bay, August, Narrows of St. John river, August 10, but was not observed in any of the samples of the "Prince" collection in September and October. No marked differences except as regards these latter months as to relative numbers have been observed, either as regards distribution or season.

Amphiprora.—The members of this beautiful genus occur but sparingly in the plankton; but owing to their delicacy and transparency, the result of imperfect silicification, are apt to be overlooked.. *Amphiprora alata,* the most common form, was found at Eastport, July 29, St. John harbour and St. Martins in August; but was rare at both. The very beautiful but rare *Amp. ornata* was obtained, but one specimen only, in the Narrows of the St. John river, August 10.

Asterionella.—This is a typically planktonic genus, common in the plankton of Europe, as well as America, but is very rare in that of New Brunswick. A species, doubtfully referred to *As. Berkeleyi,* has been found in considerable numbers at some stations in the Bay of Fundy.

Biddulphia.—This is a very characteristic plankton genus, the attachment of the frustule to form chains of considerable length adapting its members readily to flotation.

Of its species the most common is *B. aurita,* found on almost all gatherings, and at almost every season. It occurs in January at the Biological Station; at St. Andrews, again in February; in March and April at various stations on the St. Croix river and Passamaquoddy bay, as also in June and July. It is common in the waters of St. John harbour in August, and probably occurs, though not yet recorded, in the later months. No examples were noted in the "Prince" series. The much larger species *B. Mobilensis* (=B. Baileyi) was found at Chance harbour, Bald Head, Campo Bello, St. John harbour, Seely's Cove, and Lepreau, at different dates in January (the water temperature being 33° F.), and on February 14 at the Reversing Falls, St. John. It was not observed during the summer months about Passamaquoddy bay, but at Tynemouth creek, in St. John county, in August, it was so abundant as to make up the bulk of the plankton, and on September 27, it was found but rarely in the Bay of Fundy between St. John and Digby Gut. It would appear to be more common in deep water, and is one of the species quoted as being characteristic of the European plankton. *B. pulchella* was found in St. Andrews harbour, February 19, and again March 17, and April 19, but it is very rare.

Chaetoceras.—This is the most typical, as it is also the most common and widespread of all the genera which distinguish the Phyto-plankton. Of the several species represented, by far the most common, both as to numbers, time, and place, is *C. decipiens* usually easily recognized by the narrow slit-like form of the inter-cellular spaces. It was abundant on January 1, at the Biological Station, and throughout the month at other points about Passamaquoddy bay, accompanied, though much less abundantly, by the *C. sociale.* Both of these species, but with the same difference in relative numbers, were found through February in St. Andrews harbour, and again in March, extending up the St. Croix river to and above Doucett's island. Both species were similarly found all through April and May but became less common in June, and still less, in the latter months, though both were found at Eastport July 29, and Campobelle August 1. No specimens were found in the August plankton of St. Martin's or St. John, though found during this month in collections from L'Etang and Deadman's harbour. In the "Prince" series the only records of this genus are *Chaetoceras decipiens* at the eastern entrance of St. Andrew's harbour October 16, and the same species at Grand Manan, but rarely, on October 3 and 27.

Coscinodiscus.—This genus is almost invariably present in the marine plankton, and sometimes to the exclusion of almost everything else. The most common species is *C. asteromphalus,* Ehr., easily distinguished by the conspicuous central rosette of cells; and *C. concinnus,* remarkable for its large size, fine radial sculpture, and short marginal striæ. Both species were found at Campo Bello and Seely's Cove in January; but not commonly. Both again were obtained in St. Andrews harbour, February 19 and March 18, and were abundant at La Tete, March 28. They were common in April in St. Andrews, as also in succeeding months at many different stations both in Passamaquoddy bay and the bay of Fundy. In almost all instances they were accompanied by the much smaller species *C. eccentricus* and less frequently by *C. radiatus.*

Ditylum.—This genus, though frequently, and sometimes abundantly represented in the plankton of the bay of Fundy and Passamaquoddy bay, is one as to whose relationships much doubt still exists. First named and described by the late Professor J. W. Bailey of West Point, N.Y., it was subsequently referred, by West and others, to *Triceratium,* while this latter genus was itself later referred to *Biddulphia.* Except, however, in the outline of the valves, varying, as in *Triceratium* from triangular to quadrangular and pentagonal, it bears, as remarked by Mann in his report on the Diatoms of the Albatross Expedition, not the remotest resemblance to the genus last named.

As found in New Brunswick waters the genus *Ditylum* (*dis,* two, and *tyle,* a swelling) is usually in the form of a lengthened quadrate cylinder, due to the great length of its zone or girdle, the terminal valves being somewhat puckered or constricted, with slight but conspicuous bristles at the angles bordering a circle or fringe of very delicate and short bristles, from the centre of which springs a single long and stout spine. The sculpture of the valve is radio-punctate, the rays being delicate and grouped around the base of the central spine. The areolation, so marked in *Triceratium,* is entirely wanting. Though usually triangular, specimens have been observed in which triangular, quadrate, and pentagonal valves have been found, enclosed in the same connecting membrane, which is very imperfectly silicified. In the writer's opinion the forms are much more nearly related to *Rhizosolenia* and *Corethron,* than to either *Triceratium* or *Biddulphia.* They are often found in groups, of which the individuals may be attached either laterally or by the ends, on the sagittal plane. As to distributional and seasonal variations, the representatives of the genus *Ditylum* have been found in the bay of Fundy, near St. John, in February, and at St. Andrews in April, but only rarely. They were abundant in Deadman's harbour, August 10, and especially abundant in St. Andrews harbour, and off Grand Manan, in October. They were also observed during this latter month at the mouth of the St. Croix river, but rarely.

Fragillaria.—This genus, though usually to be found in plankton collections elsewhere, is not common in the region under review. This species represented appears to be mainly *Fr. capucina* and *Fr. pacifica* (?).

Grammataphora.—The species *Gr. marina* and *Gr. serpentina* are both found in the bay of Fundy and Passamaquoddy bay, but not very generally. They were both found rather abundantly and forming long chains in the waters about West Quoddy Head on the 28th of June; at Eastport, August 1 and St. Martins, also at L'Etang harbour, August 10. None were observed in the "Prince" collections, made in September and October.

Hyalodiscus.—This genus, as represented by the species *H. subtilis,* is occasionally met with in the plankton, but not in sufficient numbers to be made the basis of comparative statements. It is found but rarely in Passamaquoddy bay.

Isthmia.—Only a few specimens of this genius, including both *I. nervosa* and *I. enervis,* have been observed in the summer plankton about Campo Bello; but not in Passamaquoddy bay.

Melosira.—No genus is more widely or more abundantly met with than this, its rabit of forming long chains, some times including thirty or more frustules, making it quite conspicuous. The most common species is *M. nummuloides,* though *M. varians* and *M. Borerii* and *M. Jerghensii* are by no means rare. They have been found at various stations in the bay of Fundy and also about Passamaquoddy bay. *M. subflexilis* was found at St. John and St. Andrews, in February and March, the others almost everywhere during the summer months. In the "Prince" collection *M. subflexilis* was obtained between St. John and Digby on the 21st of September, and quite abundantly.

Navicula.—Specimens of this genus, which includes a very large number of species, are found in nearly all collections, but the majority of the latter are littoral rather than pelagic or planktonic. Of those occurring in the plankton one of the most common and widely distributed is *N. didymo,* which has been found during the summer months at many points along the coast between Grand Manan and St. Martins. *N. distans* and *N. Smithii* (including *Nelliptica*) are also of common occurrence; but none have yet been recorded from winter collections. They are common in Passamaquoddy bay, in July and August.

Nitschia.—Though represented generally, and by a large number of species, few of these are found in the plankton. The most common are *N. sigmoidea* and *N. closterium*, found near St. Andrews, April 19. *N. Sigma* was observed at the same station July 7th, and *N. seriata* in August. Besides the above *N. dubia* and *N. vermicularis* were found at St. Martins in August; *N. closterium*, *N. sigmoidea* and *N. vermicularis* in St. John harbour during the same month. *N. seriata* was obtained from the "Prince" collection, at Station 3 (between Head harbour and the Wolves) September 18; but not from other points. None were observed in October gatherings.

Pleurosigma.—Though a littoral and brackish water genus, some of its species are also pelagic and planktonic. *P. decorum* and *P. formosum* were found in St. Andrews harbour February 19; *P. fasciola* and *P. decorum* at the Biological Station February 27; the same at the Reversing Falls, St. John, February 14; at Doucette's island in March; *P. intermedium* and others in St. Andrews harbour, April 17; *P. fasciola* at West Quoddy June 17; *P. Balticum* and *P. fasciola* at the Biological Station June 28; and *P. obscurum* at St. Martins in August. *P. fasciola* and *P. formosum* were found in L'Etang harbour August 10, and *P. Balticum* at Tynemouth creek August. No representatives of the genus were found in the "Prince" collections of September or October.

Rhabdonema.—Isolated frustules, and more rarely short chains of *R. arcuatum* are occasionally met with in the plankton, but are not common.

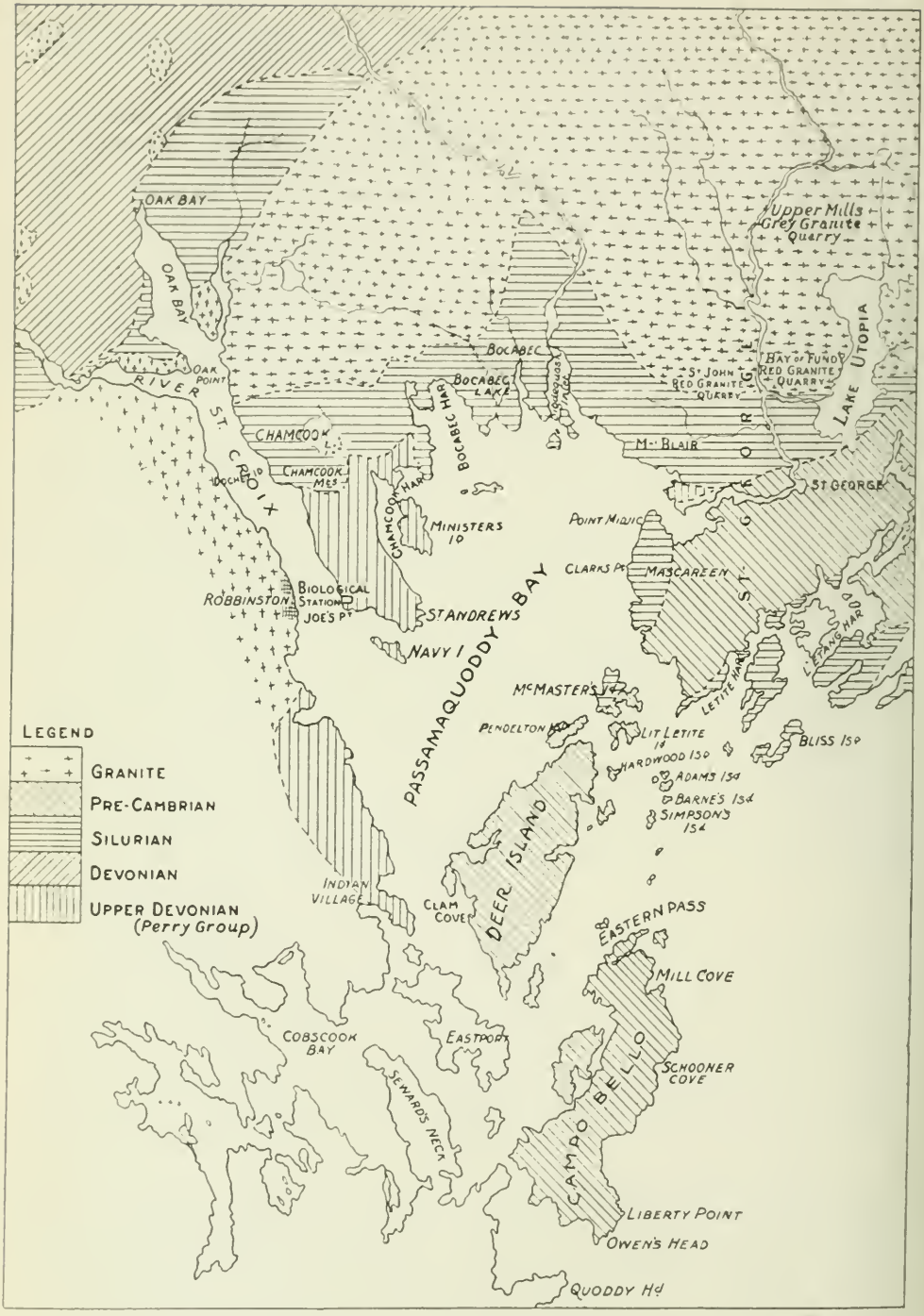
Rhizosolenia.—This is one of the typically planktonic genera, and as represented by *R. setigera*, is often very abundant. It was obtained as early as January 16 at Wilson's beach, Campbello, and at Seeley's cove January 31; in St. Andrews harbour February 19, and the Biological Station February 27; at Joe's Point, St. Andrews, and the St. Croix river March 28; and at Robbinstown May 23; but appears to be absent in June and July. It was found at Campbello August 1, and L'Etang harbour August 10, also at Tynemouth creek the same month. In the "Prince" series it was September 27 at the lower end of Annapolis Basin (with spear-like enlargements of the terminal spines, not yet observed in the bay of Fundy), and on the Annapolis river, near Goat island. In the same series it occurs as found in St. Andrews harbour October 10, St. John harbour October 19 and Grand Manan (abundantly).

Skeletonema.—This is another of the distinctly planktonic genera, its adaptation to a floating life being effected by the association of the frustules in long chains, sometimes embracing forty or fifty individuals. It is, however, characterized by much diversity as regards size, distribution and seasonal variations. It was found at Bald Head January 15, St. Andrews harbour February 19 and Manawagonish, St. John county Febraury 5; but no occurrences have been recorded at any station for March, April, May, or June. It was found at Eastport July 29, Campbello August 1 (rare), L'Etang harbour and Deadman's harbour August 10. From the "Prince" collections, in September and October, it appears to be wholly absent.

Thalassiosira.—Another characteristic plankton genus, easily recognized by the interposition between the widely separated frustules of long filamentous threads (Slime threads of the Germans). Of its two species *Th. Nordenskioldii* is the more common, but exhibits great seasonal differences. It was found in January and February at the Biological Station, again very abundantly about Joe's point, St. Andrews, on May 27, as also at La Tete, Campbello and Eastport; and at the latter station again on July 29; Biological Station March 17, St. Croix river and La Tete March 28; Doucette's island March 27; Joe's point April 30, St. Andrews harbour April 18, very abundantly;

Robbinstown May 23; Biological Station May 21, very abundantly. It was found at Eastport in July, and in L'Etang harbour August 10; but was wanting in collections later than August both in Passamaquoddy bay and the Bay of Fundy. It would seem to attain its maximum in April and May.

Thalassionema.—Forms believed to be referable to this genius have been found in several gatherings made by the "Prince" in Passamaquoddy bay. Some of these, collected in October, being composed of little else. The frustules bear considerable resemblance to those of *Synedra,* and again to some varieties of *Rhizosolenia,* but differ greatly from both. The most remarkable feature, the specimens referred to is their enormous length, running from 300 to 800 mu, with a zonal breadth from $3\frac{1}{2}$ to 8 mu. The sculpture along the edge is a very minute row of points, perhaps running about 20 in 10 mu. The cells show variations in diameter, and are often curved or flexuose, but do not taper at the ends or bear bristles, as in *Rhizosolenia.*. Perugallo following Van Heurck places the genus *Thalassionema* between *Synedra* and *Thalassiothrix.* Dr. McKay is disposed to regard the form here described as new. It may be a variety of *Thalassiothrix nitschioides.*



Geolo ical Map of Passamaquoddy Bay and Surroundings, by L. W. Bailey.

SESSIONAL PAPER No. 38a

THE GEOLOGICAL FEATURES OF THE ST. CROIX RIVER AND PASSAMAQUODDY BAY.

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(With map.)

Of those who visit the Biological Station at St. Andrews, whether as tourists or as members of the staff and participants in its work, there are many who, attracted by the unusual beauty of its surroundings, would like to know something of the causes to which that beauty is due. I have therefore been asked by members of the Biological Board to prepare a short sketch of the geological features of the region. These, of course, are fully detailed in the reports of the Canadian Geological Survey, but are contained in many different volumes, and are not always easily accessible and are so associated with the geology of wider areas as to make it somewhat difficult to obtain the desired facts. In this sketch only those are given which seem to be of general interest.

I.

The region under review is naturally divided into three sections. Of these, the first is the St. Croix river proper, a wholly fresh water stream having its sources in connection with considerable lakes north and west of Vanceboro, and thence flowing in a southerly direction to meet the second section at the falls in St. Stephen. The volume of water, though sufficient for lumbering and milling purposes, does not produce any appreciable effect on the salinity or density of the water in this second section.

The latter may be called the St. Croix estuary, and extends from the head of tide-water at the falls in St. Stephen to the vicinity of St. Andrews, where it gradually widens out into Passamaquoddy bay. Through this and the preceding section, it constitutes a part of the international boundary. The third section is that of Passamaquoddy bay itself, an area about eleven miles wide by seven, and imperfectly separated by the chain of the Western Isles, from the waters of the Bay of Fundy.

As regards the geological features of these several areas, the first needs but little consideration here. North of MacAdam Junction the rocks are mainly granite, boulders of which in great numbers, and often of very large size, thickly strew the tract surrounding and south of that railway centre. Further south the river traverses two wide belts of slates, of which the more northerly are pale of colour and carry obscure organic remains, appearing to indicate a Devonian age, while the more southerly are darker, and though yielding no fossils, are believed to be Cambro-Silurian. Through these, at many points, protrude small bosses of granite, which about St. Stephen become more considerable. Near the town last named they contain large bands of diorite and serpentinous rocks containing considerable bodies of pyrrhotites like those of Sudbury, Ont., which they closely resemble, and carry ores of nickel, though the percentage of the metal, so far as at present known, is too small to admit of profitable extraction.

II.

Below St. Stephen, at which point we enter upon the second or estuarine division of the St. Croix, the rocks on the west side of the stream are mainly granite all the way to the southern part of Robbinston, in the state of Maine, and are well seen in the Devil's Head and again in Doucette (Dochet) or St. Croix island, upon which Champlain and his followers spent their first and most unfortunate winter in Canada.

On the eastern side these granites reappear at Oak point, as also on the shores of Oak bay, either side of Waweig inlet, but in the upper part of this bay, upon both sides, the rocks are Silurian and yield characteristic fossils. Near the head of this bay, on the eastern side, are kitchen-middens or Indian shell heaps, marking one of the sites of early human prehistoric occupation. About two miles below the entrance of Oak bay, Silurian rocks again occupy the shore, being the western termination of a belt of such rocks extending eastward to and beyond Bocabec bay on the north side of the latter. At the mouth of Bocabec river, east side, are still other shell heaps of Indian origin, from which have been obtained a considerable number of aboriginal relics. A full account of this old encampment-ground and of the articles obtained from it, may be found in one of the bulletins of the New Brunswick Natural History Society.

The same Silurian belt includes Chamcook lake and Chamcook mountain. It is composed in part of massive sandstones, elsewhere fossiliferous, and in part of volcanics, partly interbedded with, but mainly resting on, the latter. Fine exposures of these volcanics may be seen along the line of the Canadian Pacific Railway, which traverses the eastern side of the lake, and consist partly of black diorites and partly of chocolate-coloured, bright-red weathering felspar-porphyries or rhyolites, the latter forming prominent hills. Chamcook mountain itself, and its associated ridges, are composed below of dark sandstones and above of diorite, the relation of the two being well seen on a bluff on the western side of the second Chamcook ridge, where, by the partial removal of the softer underlying strata, the comparatively hard diorites may be seen projecting many feet, like a shelf, over the former. That the agent producing this effect was ice, rather than water, is shown by the fact that the underside of the overhanging ledge is strewn with glacial striæ, having the same north-and-south direction as that of the St. Croix valley. As there is no corresponding ridge for many miles to the westward of the St. Croix, by which the ice might have been confined and forced beneath the overhanging brow, it seems also probable that the ice was that of a continental rather than a local glacier.

III.

We come now to the consideration of Passamaquoddy bay proper. The northern side is everywhere occupied by the Silurian rocks already described, extending eastward from Bocabec harbour and Digdequash inlet to and beyond lake Utopia. They include some prominent hills, such as mount Blair, and with a westward dip, form a series of ridges with parallel intervening valleys, the structure and arrangement suggesting a series of successive downthrows toward the centre of the bay. At the mouth of the Magaguadavic on the northern side, and again at Point Midjic, forming the southern boundary of the same inlet, they are overlaid by small outliers of the Perry group to be presently noticed; but south of this point they reappear on the Mascareen shore, bordering this to the Letite passage as well as forming the northern side of McMaster's and Pendleton's islands. At Clark's point on the Mascareen shore, and elsewhere, they hold characteristic Silurian fossils, while on the islands named the felspar porphyries or rhyolites form somewhat prominent hills similar to those of Chamcook lake, and by their colour (bright red when weathered) form, as

seen from St. Andrews or Chamcook mountain, a conspicuous feature in the scenery of Passamaquoddy bay.

On its southern side, Passamaquoddy bay is separated from the Bay of Fundy by the chain of the Western Isles, the largest of which is Deer island, while the smaller, including Adams island, Simpson's island, Casco Bay island, Indian island, and many smaller islands, lie along the southern side of the latter. In Deer island, and again in Campobello, a large island lying to the south and west of the latter, separated by the Eastern Passage, and opposite the town of Eastport, the rocks are much older than any found in this district. They consist largely of diorites and felsites, associated with chloritic and horn-blendic schists and are supposed to be of Pre-Cambrian age; but among the smaller islands, some are Silurian and others of Devonian age. The rocks of Eastport island are of Silurian age, consisting largely of rhyolites resting upon fossiliferous slates similar to those of the Mascareen shore.

The west side of Passamaquoddy bay north of Eastport is made up of red sandstones and conglomerates similar to those of the St. Andrews peninsula and of Upper Devonian age. They extend through the township of Perry, where they contain Devonian plants, and form the shore northward to within a few miles of Robbinston, where they meet and overlie the granites already referred to.

This sketch would be incomplete without some reference to the geology of Grand Manan, for though this island is outside the limits of the area under discussion, it is a place frequently visited by the members of the Biological Station staff, the surrounding waters being one of the most interesting fields on the Atlantic seaboard for marine scientific research. The island lies at the mouth of the Bay of Fundy, and about twelve miles distant from the eastern shore of Campobello. It is about fifteen miles in length, while its breadth varies from two to seven miles. Both physiographically and geologically it embraces two tracts of which the one, the eastern, is low and bordered by numerous islands, while the other or western, is considerably higher, without islands, and fronting the waters of the bay in an almost unbroken line of precipitous bluffs from 300 to 400 feet in height. The rocks of the eastern shore, and of the adjacent islands, where are all the settlements, consist of a series of slates and schists, with some conglomerates, which are believed to be mainly of Pre-Cambrian age, though obscure fossils are said to have been found at one point, near the Swallow-tail light.

The greater portion of the island, however, including all the uplands, and the western shore, which are uninhabited, is made up of rocks of much more recent origin, these being a series of trappean rocks, dolerites, basalts, and amygdaloids, of Triassic age, and similar to those which constitute cape Blomidon and the range of the North mountains and Digby Neck, in Nova Scotia. At some points when the tide is low, they may, as in Nova Scotia, be seen to overlie red sandstones, which are also of Triassic age. The relations of the traps to the older rocks of the islands may be well seen at either the Northern or Southern Head. At both of these points and again at Dark Harbour, midway of the length of the island, the columnar traps constitute some very bold and picturesque scenery.

Not only do the Perry rocks form the western side of Passamaquoddy Bay, but also the whole of the St. Andrews peninsula. As seen about the Biological Station, and elsewhere, they are noticeable for their brownish red colour, for their coarseness, and for the fact that they are made up mainly of metamorphic rocks, derived directly from the underlying formations, including especially granite and rhyolite. In these respects and in their stratigraphical relations they are markedly similar to what, in other parts of New Brunswick, have been referred to the Lower Carboniferous period, and are so represented in the Geological Survey maps; but recent observations elsewhere have tended to confirm the opinion first advanced by the late Sir William Dawson, and based upon their plant remains, that they should more properly be

referred to the Upper Devonian. From the fact that they are almost continuously exposed from a point not far above Brandy cove to the lighthouse in Passamaquoddy bay, and are tilted at a considerable angle, it is evident that they must possess considerable thickness, but they are undoubtedly faulted in places, and hence no definite or reliable estimate of that thickness can be made. At many points, especially towards their base, they are penetrated by intrusive volcanic rocks, dolerite, diabase and amygdaloid, occurring apparently both as dykes and sills. They are well exposed at the Biological Station, which is partly built upon one of them, and another has no doubt determined the promontory of Joes point, as well as the "Bar," connecting the mainland with Minister's or Van Horne's island. They are, of course, of later origin than the rocks which they penetrate.

As regards the relation of the geology to the present topography of the region, it may, in conclusion be said, that the position and general outline of Passamquoddy bay were determined by disturbance and upheavals antedating the opening of the Cambrian era, fixing at least the northern, southern, and eastern sides of the basin by ridges, such as the Bocabec hills on the north of those of Deer island and Campo Bello on the south, both converging eastwardly to and beyond St. George.

Of the conditions characterizing the Cambrian era itself we know nothing. In the Silurian age the basin was evidently in existence and occupied by shallow waters in which accumulated sand and mud beds, now more or less filled with marine fossils, over which were spread the rhyolites, porphyries and ash beds, which now constitute such eminences as Chamcook mountain, Mt. Blair and Pendleton's island. In the Devonian age were produced the granitic extrusions which now form the western side of the basin from Devil's Head to the lower part of Robbinston; and somewhat later the coarse rocks of the Perry group, marking at this time considerable subsidences, and the operation of powerful marine currents, as well as the extrusion of igneous masses. No rocks of later age are met with; but evidences of extensive glaciation during the Quaternary era abound. The estuarine portion of the St. Croix river and the channels at either end of Deer island were probably fixed at this time.

SUPPLEMENT
TO THE
51ST ANNUAL REPORT OF THE FISHERIES BRANCH
DEPARTMENT OF NAVAL SERVICE
1916-17

OFFICIAL REPORT

UPON

LOBSTER CONSERVATION IN CANADA

BY

A. P. KNIGHT, M.A., M.D., F.R.S.C., etc.,

Professor of Animal Biology, Queen's University, Kingston, Ont. Member of the Biological Board of Canada

Being the results of Investigations carried on under the Biological Board, with the aid of Officers instructed by the Department of Naval Service during the season of 1916

OTTAWA
PRINTED BY J. DE L. TACHÉ,
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1917

[No. 38c—1917.]

Frontispiece.

View of some thousands of lobster traps placed along the shore at the close of the fishing season, the property of Messrs. Burnham and Morrill, lobster canners, Bay View, N.S.

ACKNOWLEDGMENTS.

In carrying out his scheme of investigation, which is really a continuation and extension of the work commenced at Long Beach, St. Mary's Bay, N.S., in 1914, the author desires to warmly acknowledge the great interest taken by Mr. G. J. Desbarats, C.M.G., Deputy Minister of Naval Service, Ottawa, and the valuable assistance which he was the means of furnishing during the progress of the researches. The Superintendent and staff of the Bay View Hatchery, under instructions from the Deputy Minister, gave indispensable aid, especially in the construction of the lobster rearing apparatus, before the regular hatching operations were fully under way. This assistance they rendered without, I understand, any remuneration excepting their regular pay from the Department and it involved a considerable amount of manual labour. The Department placed at the service of the Biological Board the Hatchery Buildings, wharf, etc., and supplied without cost power for the apparatus used, and live steam for heating purposes.

2. The Biological Board is under obligation to Professor W. T. MacClement, D.Sc., of Queen's University, for five weeks' exacting labour in supervising the construction of the rearing apparatus, and the retaining pounds under the wharf of the hatchery.

3. Mr. A. B. Dawson, B.A., Acadia University, of Uig, P. E. Island, a post-graduate student of Harvard University, and one of the biologists employed by the Board, assisted me in every way possible, especially in estimating the output of the living fry from the hatchery, and in operating the lobster-rearing apparatus.

RECOMMENDATIONS.

1. That the Biological Board, through its Executive Committee, should confer with the Deputy Minister of Naval Service upon a scheme for conducting an educational campaign among lobster fishermen and canners with a view to securing their co-operation with the Department in conserving the lobster industry.

2. That the proposal be considered favourably for utilizing the southwest end of the Long Beach pond or the Fourchu Lobster pond, Cape Breton, to enable experiments with lobsters to be made on a large scale.

3. That the question be considered officially for establishing a uniform close season for lobsters including the months of June, July, August, and September, for every part of the coast of the Maritime Provinces.

4. That if the step be adopted by the Department of closing the Bay View Lobster Hatchery for the season of 1917, the establishment be handed over to the Biological Board for the purpose of continuing the rearing experiments with lobster fry.

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LOBSTER CONSERVATION IN CANADA.

PART I.

LOBSTER INDUSTRY DECLINING.

It is impossible to make reference to the numerous special returns and reports on the Canadian lobster fishery published from time to time, but it is quite clear from a perusal of these reports, and similar ones in the United States that every local lobster fishery from Delaware to Grand Manan, and on to Labrador, is passing through, or has already passed through, one of the following stages:—

1. A period of plenty with abundance of lobsters and comparatively few fishermen using simple gear, and old-fashioned boats.

2. A period of rapid extension beginning in Canada about 1870 and much earlier than this in the older regions of New England.

3. A period of real decline, though often interpreted as one of increase—a period in which there is a rapid extension of the areas fished, multiplication of traps and boats, a decrease in the size of lobsters caught, and consequently of those bearing eggs, and lastly a steady increase in price.

4. A general decrease all along the line except, of course, in the price paid by the consumer.

About 1870 the supply of lobsters along the Canadian coasts seemed inexhaustible. Thus a canner writing in 1873 of the supply of lobsters for his factories says: "The heavy gale of last August drove more lobsters ashore within five miles of my packing houses than I could make use of during the whole summer. They formed a row of from one to five feet deep and I should estimate them at an average of one thousand to every two rods of shore." Another writer commenting upon the abundance of lobsters in those early days, remarks: "In spite of their increased commercial value it is nevertheless a fact that in some of the northern parts of the gulf of St. Lawrence good marketable lobsters are used to manure the field."

But twenty years afterwards the tune had changed. People had begun to realize that the supplies of lobsters were not inexhaustible, and that if they wished to conserve the continuance of the canning industry they must at least take some steps to replenish waters that at one time teemed with millions of large lobsters. And so it came about that the first lobster hatchery was erected at Bay View, near Pictou, in 1891. What might be fairly described as a mania for the artificial hatching of commercial and game fish spread over the country, and found expression in demands upon the Government for the erection of various kinds of hatcheries. Accordingly we see to-day hatcheries for trout, salmon, whitefish, lobsters, shad, and pickerel. Whether these have all justified their existence remains to be seen; but this at least may be said of the lobster hatcheries, that notwithstanding all the millions of fry which they are reported to have poured into our coastal waters for the past twenty-five years, the supply of lobsters is steadily on the decline.

Nothing bears out this statement so well as Mr. Venning's report summarizing the proceedings of the Marine and Fisheries Committee's report in the year 1909, and including very full statistics from 1897 to 1908 regarding the lobster industry, which statistics I am able to present up to and including last season's returns, thanks to officers of the department.

Now if we look at the annual catches measured in one-pound cans of canned lobster, or in pounds live-weight, and divide by the total number of traps, we shall, of course, find the catch per trap, and the following table demonstrates the results:—

TABLE showing yearly pack, number of traps, catch per trap, etc.

Year.	1-Pound Cans.	Traps.	Pounds live lobsters.	Catch per trap in 1-lb. cans.	Catch per trap live lobsters.	Total catch per trap.
				Lbs.	Lbs. per trap.	
1897	11,130,554	1,156,352	25,183,100	9·6	22·0	31·6
1900	10,548,290	1,382,935	18,914,000	7·6	14·0	21·6
1901	10,056,604	1,363,512	16,419,500	7,7	12·0	19·3
1902	9,350,121	1,221,236	14,203,400	7·6	11·0	18·6
1903	10,604,218	1,205,006	10,663,900	8·8	8·8	17·6
1904	10,762,288	1,288,997	11,104,800	8·3	8·6	16·9
1905	10,497,624	1,239,651	15,392,400	8·4	12·0	20·4
1906	10,104,764	1,268,866	10,137,000	7·9	7·9	15·8
1907	10,660,530	1,340,711	9,749,000	7·8	7·0	14·8
1908	10,911,498	1,477,623	9,837,300	7·3	6·6	13·9
1909–10	9,071,600	1,458,585	10,394,700	6·2	7·1	13·3
1910–11	8,788,512	1,504,872	11,001,200	5·8	7·3	13·1
1911–12	10,007,136	1,469,192	11,082,300	6·8	7·5	14·3
1912–13	9,005,568	1,590,966	8,537,900	5·6	5·3	10·9
1913–14	7,992,592	1,617,195	10,089,700	4·9	6·2	11·1
1914–15	7,723,296	1,596,538	8,682,400	4·8	5·0	9·8
1915–16	7,822,368	1,371,774	11,932,900	5·7	8·7	14·4

1. One conclusion to be drawn from these figures and one which must be level to the comprehension of even the dullest of men is that an industry in which the catch per trap falls from 31.6 pounds to 14.4 pounds, less than one half of what it was nineteen years before, is certainly a failing industry.

2. Another conclusion, so clear that he who runs may read, is that the yearly sea crop of lobsters varies in much the same way as our land crop of wheat does. Mother ocean and mother earth never produce the same yield for two years in succession. An abundant harvest from the land or an abundant harvest from the sea in any one year does not necessarily mean an abundant harvest the next. There are ups and downs in both. I have often been asked why the catch of lobsters was greater in 1915-6 than in 1914. As well ask me why the harvest this year was less than last. Man may modify the conditions which give him his annual yield of grain by cultivating the soil, but the harvest as a whole will depend upon cold and warmth and rainfall, none of which man can control. In any year, let there come a few degrees of frost, a scanty fall of rain, or the blight of rust, and our wheat fields are ruined. This is common knowledge to every farmer; but every fisherman seems to think it wonderful that the lobster crop should vary from year to year. Run your eye down column 7 in the above table. You see the annual catch per trap varies from year to year just as the yields of bushels of wheat per acre do. One variation is no more wonderful than the other. The sea-harvest is less under man's control than the land-harvest; but we may be quite sure that the varying temperature of sea water, and the varying food supply for the fry are as potent in the production of a variable crop of lobsters as temperature and rainfall are for a variable crop of wheat. We can easily conceive how an unusually severe winter, with the increased production of ice floes, the lowered temperature of sea water continued late into spring, would tend to kill not alone the live adult lobsters but also the eggs and fry, so that a few years afterwards when we might naturally expect the normal yield of adults, it would be found that a small catch would be reported.

Again reverting to the gale in 1873 which threw up a windrow of millions of dead lobsters for five miles along the New Brunswick coast,* who can fail to see that six years later the usual crop of half grown lobsters would be lacking, just because the mothers had been killed in vast numbers six years before. Similarly, who has not heard or read of partridges dying by hundreds as the result of a great snow-thaw, followed by severe frost, so that it was impossible for the birds to obtain their usual shelter under the frozen snow. Thus we see how Nature sometimes limits the harvest from the sea as well as the harvest on land.

3. A third proof that the supply of lobsters is declining is furnished by the following statistics from the last report of the Fisheries Branch of the Department of Naval Service:—

Areas in which Canneries are operated.	No. of canneries operated in 1900.	No. operated in 1915 and 1916.
St. John, Annapolis, Kings	2	0
Digby, Charlotte	21	14
Lunenburg, Queens, Shelburne, Yarmouth	59	51
Halifax, Guysborough, Richmond	74	42
Cape Breton, Victoria	33	32
Cumberland, Colchester, Pictou, Antigonish, Inverness	100	88
Restigouche, Gloucester, Northumberland, Kent, Westmorland	225	151
Kings, Queens, Prince, P.E.I	246	172
Magdalen Islands, Quebec	159	73
Total operated	919	623

That 296 canneries have ceased operations since 1900 is a very significant fact. No one will believe that they would have been closed, or converted to other uses if the supply of lobsters had been plentiful. It is quite true that some canneries ceased operations as a result of their owners combining with other owners. By reducing the number of canneries the operators reduced their running expenses. Then again the live lobster trade has tended to reduce the number of canneries especially in south-western Nova Scotia; but after making every allowance for these two circumstances, the fact remains that the chief reason for closing these 296 canneries lay in the declining lobster supply—a decline that to all appearances is bound to go on until the lobster industry ceases to be profitable.

4. A fourth set of facts which point clearly to the decline in the lobster industry is the diminishing size of the adult lobsters, especially in Northumberland straits. Many years ago the adult lobsters were all large. They are still large in Passamaquoddy bay, but around all sides of Nova Scotia full grown ones are comparatively rare. This is amply proved by Mr. Halkett's "Tabulations of Lobster Measurements" during the past summer. Look, for example, at the three following tables which are based upon these measurements. Off Shag Harbour, Shelburne County, the total lengths of 200 lobsters were 1,937 inches, or an average of 9·68 inches each. At Shemogue, New Brunswick, 204 lobsters measured 1,609 inches, or an average of 7·8 inches, and at Pictou, Nova Scotia, the average was 7·7 inches. The average in Passamaquoddy bay, judging from those obtained for the mating experiments, at St. Andrews, N.B., last summer, must have been nearly 14 inches.

Now experience shows that the first effects of overfishing is a reduction in the size. This is true of the halibut grounds in the Pacific. The older grounds there now yield only relatively small fish. The trawls of traps in Northumberland straits,

*See "Notes on the Natural History of the Lobster," by Professor Prince, p. 1, Suppt. No. 1, 29th Ann. Rep. Dept. Marine, Fisheries Branch, 1896.

operating in shallow water have enabled the fishermen there to catch all the large lobsters, so that if fishing goes on at its present rate we may confidently expect diminishing size of lobsters with a corresponding decrease in the percentage of berried females. We cannot exterminate any sea-fish, but we may overfish easily enough, capturing at first the largest size, then the medium-sized ones, until finally the only remaining ones are those so small that it will not pay to fish for them. So will it be with lobsters.

SESSIONAL PAPER No. 38c

TABLES OF LOBSTER MEASUREMENTS, 1916.

Table 1—Off Shag Harbour, Shelburne, N.S.

Length in inches.		Number.		Total inches.
6¾	×	2	=	13
6¾	×	2	=	13½
7	×	1	=	7
7¼	×	4	=	29
7½	×	9	=	67½
7¾	×	9	=	69¾
8	×	11	=	88
8¼	×	11	=	90¾
8½	×	12	=	102
8¾	×	11	=	96¼
9	×	12	=	108
9¼	×	15	=	138¾
9½	×	9	=	85½
9¾	×	12	=	117
10	×	10	=	100
10¼	×	4	=	41
10½	×	14	=	147
10¾	×	6	=	14½
11	×	8	=	88
11¼	×	4	=	45
11½	×	8	=	92
11¾	×	2	=	23½
12	×	5	=	60
12¼	×	3	=	36¾
12½	×	4	=	50
12¾	×	2	=	25½
13	×	3	=	39
13¼	×	2	=	26½
13½	×	1	=	16½
14	×	1	=	14
14¼	×	1	=	14¼
14½	×	1	=	14½
15½	×	1	=	15½
Total, lobsters..		200	Total.	1,927

Average length, 1 lobster = 9·68 inches.

Table 2—Shemogue, Westmorland Co., N.B.

Length in inches.		Number.		Total inches.
6	×	4	=	24
6¼	×	5	=	31¼
6½	×	9	=	58½
6¾	×	13	=	87¾
7	×	21	=	147
7¼	×	15	=	108¾
7½	×	19	=	142½
7¾	×	15	=	116¼
8	×	29	=	232
8¼	×	13	=	107¼
8½	×	16	=	136
8¾	×	9	=	78¾
9	×	9	=	81
9¼	×	10	=	92½
9½	×	8	=	76
9¾	×	2	=	19½
10	×	1	=	10
10¼	×	2	=	20½
11	×	1	=	11
11¼	×	1	=	11¼
11¾	×	1	=	11¾
12	×	1	=	12
Total, lobsters..		92	Total.	1,609

Average length, in inches, 7·8.

Table 3—Off Skinner's Reef, Pictou, N.S.

Length in inches.		Number.		Total inches.
6¼	×	3	=	18¾
6½	×	2	=	13
6¾	×	11	=	74¼
7	×	14	=	98
7¼	×	11	=	79¾
7½	×	9	=	67½
7¾	×	12	=	93
8	×	9	=	72
8¼	×	3	=	24¾
8½	×	3	=	42½
8¾	×	1	=	8¾
9¼	×	2	=	18½
9½	×	1	=	9½
10	×	3	=	30
10¼	×	2	=	20½
11	×	1	=	11
11¼	×	1	=	11¼
11¾	×	2	=	23½
Total lobsters..		92	Total.	716¼

Average length, in inches, 7·7.

TABLE 4—Long Beach Pond, Digby Co., N.S.

Mr. A. B. McKay, M.A., who was in charge of Long Beach Pond last summer, measured all the lobsters that were received there during the season. The following measurements, made during the first three weeks of May, are typical of those made throughout the open season:—

May 5.	12	lobsters,	total	lengths	163 inches.
" 10.	9	"	"	"	122½ "
" 13.	28	"	"	"	371½ "
" 17.	33	"	"	"	447½ "
" 20.	35	"	"	"	460¾ "
" 22.	57	"	"	"	768 "
	174				2,233¼ "

Consequently the average length of one lobster is 13½ inches nearly, showing clearly enough that greater depth of water and greater difficulty of fishing has rendered it impossible to overfish the outer waters of the Bay of Fundy and St. Mary's Bay to the same extent as Northumberland Straits.

Nor do we get any comfort from the report of the Shell Fish Commission of 1913. Writing of the present condition of the lobster industry the Commissioners say: "The wonderful productiveness of the Canadian shores is such that the lobster industry is still carried on on a vast scale, and the total money value of this fishery is greater than ever, but in the opinion of the best informed persons the resources are being so seriously trenched upon that unless effective measures for restoring the lobster supply are taken without delay the industry must ere long cease to be profitable. The annual returns, though showing a very large increase in the money value, are really misleading, *because while the supply of lobsters is declining* the price has so materially advanced that the total value is greater to-day than at any previous period" —$4,571,014 for the year 1911-12. Enough probably has been said to show that in the lobster fishery we have passed the period of plenty, passed the period of rapid extension, and are now in the period of real decline, with increasing prices. In illustration of this latter point, it is worth noting that in 1859, two cents was the price of a five pound to a twenty-pound lobster, whereas during the past summer (1915) three-pound lobsters were retailed in New Brunswick at $1 each

DECREASE IN BERRIED FEMALES.

It is not merely the decrease in the annual pack that causes most concern to the friends of conservation. It is the decrease in the relative numbers of females which carry eggs. How radically this percentage has changed in recent years may be seen from the following report which has been kindly furnished me by Dr. Hugh M. Smith, the United States Commissioner of Fisheries at Washington, D.C.:—

Lobsters taken in Massachusetts.

Year.	Number of lobsters above 10½ inches.	Total Females,	Egg-bearing lobsters.	Percentages.
		Assuming that that half of the total are females.		
1888	1,740,850	.....	.....	
1889	1,359,645	679,842	61,832	9·0
1890	1,612,129	.....	70,909	
1891	1,292,791	.....	49,973	
1892	1,107,764	.....	37,230	
1893	1,149,732	.....	32,741	
1894	1,096,834	.....	34,897	
1895	956,365	.....	34,343	
1896	995,396	497,698	30,470	6·0
1897	896,273	.....	23,719	
1898	720,413	.....	19,931	
1899	644,633	.....	16,470	
1900	646,499	.....	15,638	
1901	578,383	289,196	16,353	5·0
1902	670,245	.....	.....	
1903	665,466	.....	.....	
1904	552,290	.....	13,950	
1905	426,471	213,235	9,865	4·6
1907	1,039,886a	519,943	10,348	2·0
1908	1,035,123a	.....	9,081	
1909	1,326,219a	.....	11,656	
1910	935,365a	.....	7,857	1·6

a Number of lobsters above 9 inches.

Dr. Smith is careful to state, in a communication which accompanied these statistics, that in all probability the number of berried females was greater than given in the report, for the reason that some fishermen were careless in reporting accurately their full catches. For purposes of comparing the proportion of berried females in United States waters with that in Canadian waters, the Biological Board asked the Department of Naval Service to collect similar statistics to those obtained from Dr. Smith, and an official of the department was detailed to do this work, Mr. Halkett, of the Fisheries Branch. He carefully prepared the statistics, which undoubtedly represent the facts, and these facts are not reassuring. The tables setting forth these results give the places visited, the dates, the number of males and females observed, and the number of berried females. As far as Canadian waters are concerned, in 1916 the berried females are seen to stand just about where the Massachusetts waters did in 1906. Unless stringent conservation measures are adopted, therefore, we may look forward ten years and see our lobster industry as depleted as the American one was in 1906.

OUTSTANDING FEATURES.

1. The outstanding feature in Dr. Smith's statement is the steady decline in the number of lobsters caught from 1888 to 1905. In 1907 there is a sudden rise because the legal length was reduced from 10½ inches to 9; but thereafter just as surely as in previous years, the catch again begins to fall.

2. But perhaps the most disturbing feature is the steady reduction in the number of berried females, showing that the supply of lobsters is being cut off at its very source. In last year's report I quoted a statement of Vinal Edwards' to the effect that about 1890 he had found 63·7 per cent of the females off No Man's Land, U.S., carrying eggs. When we read a report, therefore, like Dr. Smith's showing a reduction in percentage to 1·6 per cent we may well be alarmed.

TABLE showing Number of Lobsters Examined, April-August, 1916.*

Date.	Name of Place.	No males.	No females.	Berried females.	Remarks by A. P. Knight.
1916					
April 24th	Tommy's Beach, N.S	56	58	0	
" 25th	Tommy's Beach, N.S	26	27	0	
" 28th	Little River, N.S	23	17	0	
May 2nd	Whale Cove	25	28	0	
" 3rd	White Cove	26	19	1	Eggs of 1915.
" 5th	Tiverton	9	20	0	
" 15th	Lunenburg	36	35	1	Eggs of 1915.
" 17th	Port Mouton	50	39	3	Eggs of 1915.
" 20th	Shag Harbour	46	54	0	
" 22nd	Shag Harbour	88	112	0	
" 23rd	Shag Harbour	39	69	2	Eggs of 1915.
" 24th	Shag Harbour	171	158	0	
" 26th	Cape Sable Island	68	98	0	
" 30th	Lobster Bay, W. Pubnico	82	73	0	
June 2nd	Cape St. Mary's	66	86	0	
" 6th	Mink Cove	34	25	1	Eggs of 1915.
" 10th	Little River	24	28	0	
" 12th	Little River	14	10	0	
" 15th	Ostrea Lake	16	14	0	
" 16th	Jeddore	169	191**	6	Eggs of 1915. First eggs of season observed by Mr. Halkett to be hatching out.
" 20th	Pope's Harbour	6	6	0	
" 24th	Pugwash	366	352	50	
" 28th	Skinner's Reef	36	36	1	Eggs (1915.)
" 29th	Pictou Island	24	39	1	Eggs certainly new.
July 10th	Northport	111	110	10	1 new, 9 old 1915.
" 13th	Shemogue, N.B.	108	96	5	Eggs (1915.)
" 17th	Dupuis Corner	50	27	1	1 old.
" 19th	Cormierville	133	105	0	
" 20th	Chockfish River	139	119	1	New.
Aug. 1st	Cape Traverse, P.E.I	157	158	1	New.
" 2nd	Cape Traverse, P.E.I	134	112	2	Last eggs seen hatching 1 old 1 new.
" 4th	Brae Harbour	164	108	1	New eggs.
" 5th	Rocky Point	135	85	1	New eggs.
" 7th	Brae Harbour	207	118	3	New eggs.
" 9th	West Point	325	274	5	New eggs.
" 10th	Brae Harbour	156	106	3	New eggs.
	Totals	3,333	3,013	100	3·2%

* From Mr. Halkett's report to the Department.

** The larger number of these 191 females had all hatched off their eggs according to Mr. Halkett. Their swimmerets showed traces of the adhesive secretion left after the eggs have hatched out. The appearance of the swimmerets showed a gradation from the normal in some females to the partially hatched in others.

Some interesting points in the report above referred to are:—

(1) The percentage of berried females south of Nova Scotia 1·2 per cent. is less than that of Massachusetts in 1910, namely 1·6 per cent. North of Nova Scotia including the Straits of Northumberland, our percentage is only 4·2; but even this is sufficiently high to attract the south shore fishermen to fish in the richer waters of Northumberland Straits year after year.

It will be noted that our average for the whole coast is only 3·2 per cent; but what would a farmer think of a flock of 100 hens only 3·2 per cent of which lay eggs? Or of a herd of 100 cows only 3·2 per cent of which bore calves. It is not likely that there

can be any lengthened future for the Canadian lobster industry when only 3·2 per cent of the mothers extrude eggs each year.

(2) The first hatching eggs were found on June 16, but Mr. Halkett could not say whether there might not have been females that had hatched off all their eggs previously to this date. It would be impossible for any man to be certain that among all the females caught during April, May and the first half of June, there were none which had borne and hatched out their eggs, because as soon as females have cleaned their abdomen after hatching, they resemble commercial lobsters and in fact become commercial lobsters. The change at this season from a berried to a commercial female may take place in a week or ten days.

(3) The catch of 50 berried females at Pugwash, June 24, calls for special notice. Here the percentage of berried females rose to 14, a most unusual thing. How is it that such a large number suddenly made their appearance? On questioning fishermen and canners I found that they generally gave one of two explanations,—(*a*) Either the locality is a favourite spawning ground to which the females resort, or, (*b*) else it is the habit of females for three or four days towards the end of June to come out from their burrows in unusually large numbers to hatch their eggs.

At such times they are trapped in large numbers. The latter explanation seems to be the better one, as it is unlikely that during a whole summer's fishing only one spawning area should have been by chance found, if such special spawning areas exist. All the canners whom I consulted upon the subject were perfectly familiar, it is interesting to observe, with the fact of a large catch of "Eggy school lobsters," as they called them. The catch occurs about the end of June every year. It occurs in like manner off the Massachusetts coast.

That this "eggy school" makes its appearance about the same date each year requires explanation, and the explanation would seem to be that the female lobster knows when her eggs are ripe for hatching, and then leaves her burrow. How does she know that her eggs are ripe? We know that hairs on the human body are organs of touch. Any one can convince himself of this fact, who will simply take a pencil and touch the hairs, not the skin, on the back of the hand. Similarly in many other animals the hairs are sensitive to touch. One can readily understand, therefore, how the softening of the tenacious secretion which fixes the eggs to the hairs on her swimmerets may give the first intimation to the mother lobster that her eggs are ready to hatch. As the majority of mothers lay their eggs about the same time in August, so a majority of mothers will hatch their eggs 10½ months later, and thus we come to see that an "eggy school" of lobsters merely means that an unusual number of berried females leave their burrows to hatch their eggs at the same time of the year and get caught in the fishermen's traps.

4. Another set of facts which will be referred to later is, that after August 1, the proportion of males to females varies in a marked degree. Up to this date the ratio was found to be 100 males to 105 females, but after this date the ratio changed to 100 males to about 70 females. Where had the other 30 per cent of the females disappeared to? Were they moulting and hiding?

5. The fifth circumstance which calls for notice in the statistics given above is that all the eggs found by Mr. Halkett in August were new eggs, or eggs of 1916, whereas most of the eggs observed in May and June were old eggs or those of 1915. It looks therefore as if the open seasons along our coast had been fixed without having regard to the spawning, shelling and hatching habits of the lobster. One is accustomed to think of fishing laws and regulations being framed for the purpose of conserving our fisheries more especially during the breeding season; but it is manifest that the open and close seasons for lobster fishing in Canada have been framed for other purposes altogether. The Shell Fish Commission of 1913 realized clearly enough the desirability of a universal and simultaneous close season applicable to all the waters of the Atlantic shores of Canada, and also the desirability of one universal fishing season, for they mention both such seasons on page 33 of their report.

A Natural Close Season.

The researches carried on under the Biological Board during the summers of 1914, 1915, and 1916 point clearly to the necessity of a close season extending at least from June 1 to September 30, if the lobster areas are not to be depleted and the industry rendered unprofitable within the next few years. As pointed out elsewhere in this report, hatching begins probably early in June and lasts until the middle of August. In many lobsters, hatching is followed by shelling. What percentage of females cast their shells following hatching we do not know; but it is known that for six or eight weeks afterwards they are quite defenceless and unfit for human food. Also it is known that from the end of June until well into September, egg-laying is going on. Should not the laws and regulations, therefore, which are intended to protect the lobster in its hatching, its moulting, and its egg-laying habits cover the period from June 1 to September 30 ? Let the other eight months of the year constitute the open season, and during that open season let there be such strict enforcement of the law that no fisherman shall have seed lobsters in his possession. If this is done, a great advance shall have been made in conserving the lobster industry in Canada.

The objection to trapping during June is easily understood. Everyone who has seen a fisherman hauling his traps in this month must have noticed thousands of eggs dropping off the abdomen of those females which were carrying ripe eggs, sometimes even before they are touched by the fisherman, always, when they are being removed from the traps. The bottoms of fishermen's boats carrying lobsters to the canneries are frequently covered with thousands of ripe eggs. The loss of fry in this way is very great, and the loss would all be saved if the month of June were included in the close season.

PART II.

REARING LOBSTER FRY.

At the end of last season the Biological Board decided to abandon further experiments at Long Beach pond, and to remove such parts of the apparatus as were still serviceable to Bay View, five miles from the town of Pictou, Nova Scotia. This location was chosen because of the higher temperature of the water, and because it was here that the first lobster hatchery in Canada was located in 1891. It was

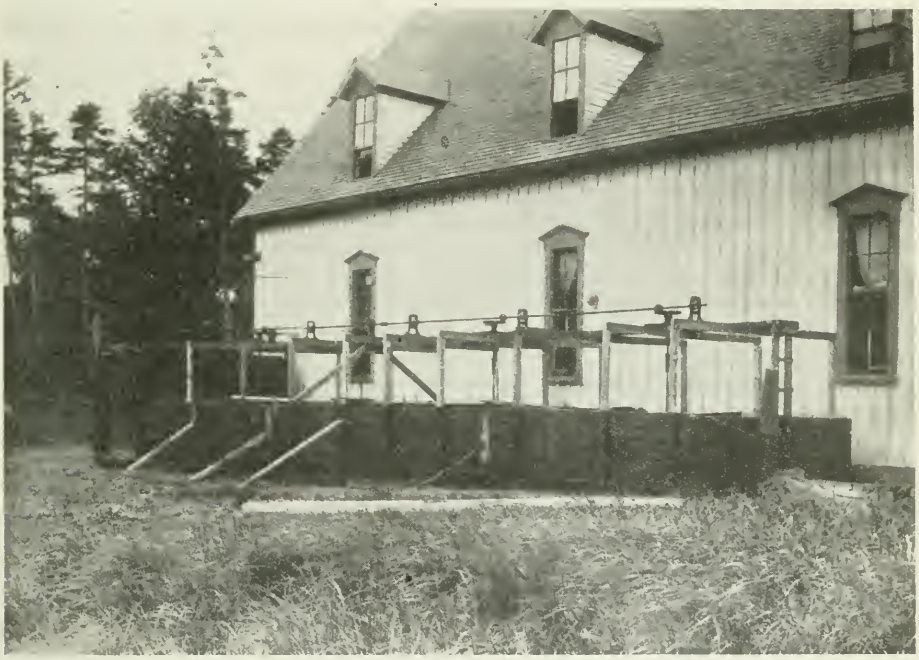


Fig. No. 1.—Bay View Lobster Hatchery from the east. Alongside the main building are the rearing boxes constructed and operated under the Biological Board of Canada. The shafting, paddles, etc., supported by the superstructure, are driven by a small steam engine located within the hatchery.

naturally thought that the two operations of lobster hatching and lobster rearing might be mutually helpful, and so indeed they proved to be. The Department of Naval Service furnished the Board *gratis* with motive power, live steam, and fresh sea-water, and the Board's staff of biologists were at hand to aid the hatchery staff with any advice which they might need in carrying on the work of the hatchery.

It was pretty certain that one cause of the failure to rear fry to the crawling stage in 1914, and again in 1915, was the cold water of St. Mary's bay. The low temperature (average 59° F.) delayed development and allowed ample time for the rapid multiplication of diatoms upon the fry, with the result that they died in large numbers. Under the circumstances Professor Macallum, F.R.S., Secretary-Treasurer of the Board, suggested that warm water should be used in 1916. As a result of the adoption of this suggestion this year, not more than 100 diatoms were observed upon

any one larva ecdysis, and these diatoms never interfered with either their swimming or feeding.

This then was the chief departure in our operations in 1916 from those of the two previous years. The change, however, necessitated others. In the first place, we could no longer have our rearing boxes immersed in the sea-water. If we did, there would be an immense loss of heat from the warmed water of our boxes to the surrounding water of the sea. The boxes, therefore, had to be placed upon land, and close to the hatchery, so as to be convenient to steam power and to the fresh running sea-water.

In the second place, we had to reduce the depth of water in our boxes. The weight of water in boxes 10 feet by 10 feet, by 3 feet 9 inches deep would be so great that no ordinary deal boards would stand the strain. Accordingly the depth of water was reduced to about 2 feet 4 inches. Even with this reduction the pressure caused bulging of the sides and bottom, with the result that in place of each box being water-tight in relation to the other, the joints opened sufficiently to allow our fry to pass from one box to another.

A third change in our apparatus was in the water supply. Whereas in the two previous years, fresh sea-water was drawn in through large openings in the bottom of our boxes and forced out through equally large openings in the sides, this season we were compelled to supply water to our four boxes through iron pipes which conveyed the water from the hatchery tank. It is true that we had a small tank of our own between the big tank and our boxes, but it was for the purpose of warming the cold sea-water up to any desired temperature. The warming was done by passing live steam through a coil of pipes which were placed in the bottom of the small tank. The average temperature maintained was about 68 F. The revolving paddles in each box were continued in use this season, but not for the purpose of supplying a current of fresh sea-water to the fry. The object was rather to keep the fry in motion so as to prevent cannibalism, and to aërate the water by exposing a fresh surface to the oxygen of the air. The only change in paddle movement was a reduction in speed from about nine revolutions per minute to about six. It had seemed to me in our two years' previous experience that nine revolutions produced a current which tumbled the fry about to an unnecessary extent, and without any corresponding advantage. Last year the refuse food, the fry casts, dead fry, algae, and other material entering our boxes, were all passed out through the side windows with the water which left our boxes. This year a different arrangement had to be made. A faucet was placed in the bottom of the boxes about the centre. Each could be opened at pleasure, and the refuse passed out as soon as it appeared to have accumulated beyond a point that might prove poisonous to the fry. The flow of water to the fry under this new plan was a subject about which we had no information.

We started operations by supplying each box with a stream of water which allowed about nineteen pints of sea-water to enter and leave every minute. Towards the end of the season Mr. A. B. Dawson carried out an experiment on this subject and made the following report:—

"At Bay View the question was raised: were the larval lobsters receiving sufficient fresh water or was the high death-rate partially due to a deficiency in the supply? The question was a vital one, but work on it was neglected till late in the season and only one experiment was attempted. One specimen of a fourth-stage larva was placed in a hatching jar containing a pint of water. Due to the large size of the jar, which was seven inches in diameter, the surface of the water exposed to the air was great in comparison with the volume. The jar was kept at the ordinary room temperature of the hatchery, which varied according to the changes in the weather. No attempt was made to replace the water lost by evaporation. Food, consisting of cooked egg, was added every two or three days and the uneaten fragments were allowed to accumulate at the bottom of the jar. Under these conditions the

lobster lived four hours less than three weeks. That is, the animal survived for 300 hours in a pint of water, which was necessarily considerably reduced by evaporation and had become more or less foul by decaying particles of food.

According to careful measurements the four rearing boxes, which at first contained 20,000 first-stage larvæ, received on an average 77 pints of water a minute, or 1,386,000 pints in 300 hours; 70 pints for a single individual. This experiment would indicate therefore that the water supply to our boxes was ample, since death came to the subject of the experiment supplied with one pint, only after a period of 300 hours.

Other and more accurate experiments along these lines suggested themselves, but on account of the lack of the necessary time had to be postponed."—(Sgd.) A. B. Dawson.

Mr. Dawson's conclusion is corroborated by the observations of all who have worked on lobster's eggs and on newly hatched larvæ. I have frequently seen a dozen or more fry live for a week or longer in less than a half-pint of water, and without the water being changed.

On the 9th of July into two of our boxes, fry were transferred from the fry tanks of the hatchery. Two days later 10,000 more fry were placed in the other two boxes, making 20,000 in all; that is, 5,000 in each box. The second 10,000 were fry from our own stock of mother lobsters, of which we had 61 in a compartment under the hatchery wharf. Whatever the reason may have been, these latter fry appeared stronger and more vigourous than those from the hatchery jars. At any rate, more of them survived to the fourth stage. All received the same quality of food, and all were kept at the same temperature, and the only apparent reason for the differences in vitality was that the aëration of the water in our boxes was better than in the hatchery jars. As soon as our first batch of fry was seeded into our boxes, routine work was established and went on as in previous years. The kind of food (scrambled eggs), quantity fed, and times of feeding, were all the same. The fry passed through their first moult in about seven days, their second in about four days, and their third in about four days; and on July 22 we counted out 800 fourth-stage fry, or about 4 per cent of the 20,000 with which we started operations.

This is rather a poor showing as compared with the 40 per cent output reported at Wickford. It is, however, equal to that at Port Erin, Isle of Man, where the manipulation is largely by hand, and where the output has ranged around an average of 4 per cent for the years 1911-1915.

It happened that Professor Macallum visited our plant the day we distributed our first batch of fourth-stage fry in the sea. In thinking over the heavy mortality which our fry suffered not only at Bay View, but at Long Beach pond in the two previous years, he suggested that perhaps the next advance in lobster rearing lay in the direction of better feeding. He thought that a possible cause of the great mortality lay in the fact that the fry were fed exclusively on cooked food. It is quite true that some of the fry might get some vitamines from the plankton of the sea water, or from eating their fellow fry, but if not, then the absence of the growth-promoting substances to be found only in raw food would in time prove fatal. By the addition of minced crab, or clam, to the food, Dr. Macallum thought better results might be achieved. We shall test this matter next season.

SECOND BATCH.

A second batch of 5,000 fry was placed in box 4 on July 24, and a second batch of 5,000 in box 3 on July 26. On the 28th, it was observed that some first stage fry were in boxes 2 and 1, indicating that on account of the continued weight of water, the partitions between the boxes had given way and allowed some of the fry to escape from

the boxes, 3 and 4 into boxes 1 and 2 in which some 3rd and 4th stage fry of our first batch were confined.

It is well known that cannibalism increases with the age of the fry and accordingly it was no surprise to find the younger fry growing fewer in boxes 3 and 4, because just as they migrated to boxes 1 and 2, they were devoured by the older fry or so-called "Sharks," inhabiting these boxes.

On the 29th, 4 per cent of the first batch were transferred to the sea. The few remaining of the second batch of fry in box 4 had all moulted by the 30th, taking 5 and 7 days to do so. On the 31st about 1,500 fry were placed in box 1. By August 2nd a few of the second batch in box 4 were in the 3rd stage. From this date onward to the 14th when the machinery was stopped, there was nothing to report except steadily diminishing numbers from causes which we could not understand.

No doubt cannibalism played some part in their disappearance; but it is likely that the kind of food, or possibly the absence of the natural kind of food, was a factor in their rapid disappearance. Plankton feeding has been tried at the Port Erin laboratory, Isle of Man, but apparently without much success, because as already stated, only an average of 4 per cent of their fry has hitherto been reared to the crawling stage.

Our second batch ended with 17 fry in the 4th stage and 135 in the 3rd. This out of some 11,000 or 12,000 larvæ.

PART III.

MATING EXPERIMENTS.

As 1916 is the third season during which mating experiments have been carried on, it seems proper to review the results before planning for a continuation of these experiments.

About the 10th of June, 1914, there were placed in a small pound off St. Mary's bay, N.S., 47 females and 15 males all known as "commercial lobsters," because the females when caught in fishermen's traps have no berries upon them. The pound was made of wooden slats about 4 feet long by 3 inches wide and 1 inch thick, placed about one inch apart. The area enclosed was 20 feet by 10 feet; the bottom was muddy; and the animals were fed regularly.

On the 12th of August they were dipped up to see what condition they were in. To our surprise it was found that 36 per cent of the females had extruded eggs. By the end of September the percentage had risen to 64 per cent. On the 7th of April the following spring, thirty females, representing the 64 per cent, were all found alive in the latticed compartment with a full complement of eggs upon them. While Dr. Herrick (quoting from Vinal Edwards' "American Lobster," 1895) reports 12 per cent as the percentage of berried females caught in fishermen's traps along the Massachusetts coast, in Canada careful inquiries among both canners and fishermen of the bay of Fundy area elicited the information that only about 1 per cent of the female lobsters carry eggs. It was clear, therefore, that as a mere matter of accident we had increased the percentage from 1 per cent to 64 per cent. Two questions accordingly presented themselves for investigation: (1) How is it that 99 per cent of our female lobsters in the open sea carry no eggs, and (2) how is it that when males and females are brought together in a small pen, as high a percentage as 64 per cent are found to carry eggs?

Reverting to the thirty females which wintered in our pound, it may be noted in passing that they all hatched their eggs normally during the last week of June and the early part of July, and that nine of the thirty again extruded eggs in July-August, 1915.

As to the mating experiments of the season of 1915, it may be remarked that they were not so successful as were those of 1914. Only 40 per cent extruded eggs and over half of these were unfertilized.

One reason for this was undoubtedly the lack of males. During the early part of the summer we had only one male to serve fifty-one females. Later on, we were fortunate in securing twenty-five more males, but half of them died by accidental poisoning with the "Indian Red" paint on the inside of their pen. Moreover, many of the remaining ones were undersized—9 to 9½ inches in length. But perhaps the main cause of the poor results lay in the fact that the large majority of the females had been retained in the pound over winter and had suffered much in general health. Few of them had moulted and their "shells" were covered with a dark brown algal growth that I have always seen upon lobsters in lengthened confinement in a muddy pound, but never upon lobsters that are taken directly from the open sea.

In 1916 the Board authorized an extension of the experiments to two additional areas on the maritime coast, namely, St. Andrews, N.B., and Pictou, N.S., on the Northumberland straits. The extrusion of eggs at the three localities was 26 out of 105 females at St. Mary's bay; 8 out of 22 females at St. Andrews, and 14 out of 21 at Pictou, or, roughly speaking, 25 per cent, 36 per cent, and 66 per cent respectively.

How do these percentages compare with the percentages on females caught in lobster traps in these same areas? Fortunately we were able to make some approximation to an answer to these questions through some investigations which, under instructions from the Department of Naval Service, Mr. Halkett, an officer of the Fisheries Branch, was detailed to carry out. He spent the summer of 1916 going out with the fishermen at various points along the coast and compiling statistics as to the total males, total females, and percentage of berried females caught in the lobster traps. He carried on the work during the open seasons in the different districts in Nova Scotia and in the straits of Northumberland, and his results may be considered to be fairly typical of the conditions prevailing in the open sea, so far as such conditions can be gauged from the catches in the traps of the fishermen.

From the returns thus secured, and printed elsewhere in this report, it is clear that the percentage of female lobsters carrying eggs, taken in traps, varies from less than 1 per cent in the bay of Fundy area (which may be said to include St. Andrews and St. Mary's bay) to 4·2 per cent in Northumberland straits; whereas mating lobsters in artificial compounds in these same areas shows an increase over these figures of 2,500 per cent at St. Mary's bay, 3,600 per cent at St. Andrews, and 1,600 per cent at Pictou.

THE EXPERIMENTS AT LONG BEACH, N.S.

The Biological Board is indebted to Mr. D. A. Mackay, M.A., for furnishing the details of the breeding experiments at Long Beach. During May and June, Mr. Mackay supervised the reception, detention, feeding, and distribution of 745 berried lobsters that had been purchased from fishermen and confined in the retaining pounds at Long Beach pond until the end of the "open" season, June 16. During July and August he supervised our mating experiments and sent on to me at Pictou from week to week samples of the eggs which were extruded.

The lobsters were confined in five different pens or compartments, four of them being rearing boxes exactly like the rearing boxes of the Wickford plant, only that the sides consisted of lattice work. The fifth pen was latticed also, but it rested upon the bottom of the pond with about 3½ feet depth of water at low tide. The boxes were numbered for convenience in keeping our records. In box 1 were placed twenty females and ten males; in box 2, twenty-four females and twenty-four males; in box 3, twenty-four females and eighteen males; in box 4, twenty-two females and 6 males and in box 5, the one which rested on the bottom, 20 females with no males.

On the 25th of August, when Mr. Mackay ceased making observations, the berried females obtained from each box stood as follows: Box 1, four females; box 2, four females; box 3, six females; box 4, five females, and box 5, seven females, or 26 in all out of 105 (5 having died in confinement) or about 25 per cent. It will be noted that the pen with no males in it gave the largest number of berried females. Only one of the seven females in it carried unfertilized eggs. It is clear that no conclusion can be drawn from these meagre experiments as to the proportion of males and females that should be placed in any pen so as to secure the maximum of berried females. As six out of the seven females in box 5 bore fertilized eggs, it is evident that the sperm cells for the fertilization of the eggs must have been deposited in the receptaculum seminis of the females before they were caught. It may be, of course, that the sperm cells which fertilized the eggs of the 19 in the other boxes were also deposited in the receptacula of the females when they were in the open sea, and that no copulation at all took place in the pens.

EXPERIMENTS AT ST. ANDREW'S.

The mating experiments at St. Andrew's were supervised by Dr. A. G. Huntsman, the Curator of the Biological Laboratory there.

The car in which the lobsters were confined was a floating one similar to those used by fishermen. It was 16 feet long by 10 feet wide, and 3½ feet deep, and subdivided into 8 compartments each 5 feet by 4 feet by 2½ feet, inside measurements.

On June 18, 24 females and eight males were placed in the car—3 females and 1 male in each compartment. They were all commercial lobsters. Dr. Huntsman examined the car on August 8 and found that two of the females had "disappeared." Of the remaining 22, seven had extruded eggs. On the 23rd of August they were again examined when it was found that 1 more had extruded eggs, making 8 out of 22, or nearly 36 per cent.

The females were all large, those which spawned ranging from 14 to 16 inches in length; those which did not spawn measured from 13 to 15 inches. These measurements are in sharp contrast with those at Pictou where the lobsters are all comparatively small, averaging only 7·7 inches, due no doubt to excessive fishing with bull trawls.

As to spawning by compartments, it was found that there was a single female with eggs in each of five compartments on August 8, and in one compartment there were two with eggs; from one of the five compartments, the berried female was removed and an unberried female put in; one of the females in this compartment had extruded eggs by August 23. All the eggs were fertilized.

THE BAY VIEW EXPERIMENTS.

The mating experiments at Bay View were under my supervision. Twenty-five males and twenty-five females were put into a compartment measuring about 10 feet by 18, the depth of water ranging from four to eight feet with the rise and fall of the tide. The bottom was made of boards but it was partly covered with sand and stones. Whether the character of the bottom had anything to do with promoting mating and egg-laying is difficult to say. Further experiments are necessary to decide this point. At Long Beach this season the pen in which the largest number of females extruded eggs had a stony bottom and in 1914 the pen in which our first mating experiments took place had a muddy bottom. It looks, therefore, as if the natural sea bottom, whether stony or muddy, promoted egg-laying as indeed one might expect. The other four compartments at Long Beach as well as the 8 pens at St. Andrew's had board bottoms.

At Bay View, two of the original 25 females "disappeared" from the pen, and 2 died. Fourteen of the remaining 21 extruded eggs, making the percentage of females carrying eggs in this pen 66 per cent. All the eggs but two were fertilized. The percentage of females carrying eggs in the open sea as determined by fishermen's traps during the month of June was 4·2 per cent. During the last 10 days in August the percentage was only 2½ per cent; and during the last four days in September the percentage had risen to 5·6 per cent.

RELATIVE NUMBERS OF THE SEXES.

Any attempt to estimate the value of lobster mating or lobster breeding in pens inevitably brings up the question of the relative numbers of females which naturally carry eggs on the sea bottom. We have unfortunately no direct knowledge of the relative numbers of males and females in the open sea. When lobsters were abundant as in the sixties and seventies, it would have been possible to determine more accurately than now the proportion of males to females, as well as the percentage of berried ones; but to-day with greatly reduced numbers scattered over wide areas the determination is more difficult. We are dependent upon the lobster trap for our inferences, and the lobster trap gives widely varying numbers in different areas as may be seen by reference to the following table of catches:—

Place and Date.	Males.	Females.	Of which were berried.	Ratio of males to females.	Percentage of berried females.
Unnamed place, June 1st to 30th, 200 yards from shore	84	98	3	100 116	3·0
Bay View, June 23rd, 24th and 27th, Inside fishing	1,764	1,052	45	100 60	4·2
Bay View June 23rd, 24th, 27th, Outside fishing	1,112	1,148	48	100 103	4·1
Unnamed place, August 1st to 30th, 200 yards from shore	110	42	3	100 38	7·1
Last 10 days August, Bay View, Inside fishing	1,279	817	14	100 63	1·7
Last 10 days August, Bay View, Outside fishing	460	319	14	100 69	4·4
Bay View, Sept. 27th to 30th inclusive, Inside fishing	181	104	9	100 60	8·0
Bay View, Sept. 27th to 30th inclusive, Outside fishing	350	233	10	100 66	4·3
*(1) Mr. Halkett's catches	3,333	3,013	100	100 93	3·06
(2) Mr. Edwards' catches	1,313	1,344	168	100 103	12·0

*Mr. Vinal Edwards' Woods Hole catches and Mr. Halkett's are included for the sake of comparisor but in these there is no distinction between "outside" and "inside" fishing.

Fishermen at Bay View designate three miles off shore as "outside," and anything inside the three miles as "inside" or "inshore" fishing. Also, anything deeper than five fathoms is always designated outside as a rule; less than five fathoms is inshore, but there is no hard and fast rule as to depth in distinguishing inside from outside.

Are we to accept these figures as representing approximately the true proportion of males to females upon the sea bottom? If we are, then one inference is that there are more males than females, close along the shore as compared with the numbers out at sea. If on the average, males and females are equal in number, then it would be interesting to discover how it is that "inshore" there are only about 60 or 70 females to 100 males. Where are the other 30 per cent or 40 per cent of females? If present on the bottom with males, why did they not enter the traps? Were they hiding in their burrows? Had they cast their shells, and were they soft-shelled and afraid to venture out? These questions all await answers in the future.

Referring again to Mr. Halkett's figures for August 1 to August 10 along the south shore of Prince Edward Island, it will be observed that the males numbered 1,115 to 789 females or a ratio of 100 males to 70 females. The statistics, therefore, for "inside" fishing the end of June, at the end of August, and at the end of September at Bay View, all corroborate those obtained at Prince Edward Island, namely, that within 3 miles or less from shore and in shallow water the males outnumber the females in the ratio of 100 to between 63 or 70; whereas offshore in deeper water the ratio stands about 100 males to 100 females. What these variations in numbers mean it is difficult to say, but one thing is quite clear, the females do not migrate "inshore" to the same extent as the males. This general migration towards shore in the summer and offshore in autumn has of course been long known; but why should not the sexes remain equal?

Perhaps the most interesting result in the September fishing tests was the discovery that of 50 males and 50 females placed in two mating pens the 30th August, 13½ per cent of the females had extruded eggs by 30th September; whereas in the open sea the percentage on August 30 was only 2½ per cent and at the end of September 5·6 per cent, and this too notwithstanding the fact that one of our pens gave way at

one corner and allowed some of our mating animals to escape. The efficacy of mating in this instance is clear enough.

NUMBER OF BERRIED FEMALES.

Undoubtedly the percentage of females carrying eggs varies greatly along both the Canadian and the American shores, and this is a very important matter when we come to estimate the value of mating. If the lobster traps give us a true idea of the lobster population on the bottom of the sea, then the efficacy of mating is beyond all dispute; but if there are in the open sea many more berried lobsters than are revealed by traps, then there may be little or no efficacy at all in mating in pens. Manifestly, therefore, it is of the highest importance to gather as much information as possible regarding the lobster population on the ocean bottom.

BIENNIAL EGG-LAYING.

It cannot be admitted that the theory of biennial egg-laying with moulting in the alternate years can have any reasonable bearing upon our mating experiments. Because, in the first place the theory has never been shown to be founded upon facts. On the contrary, we have had females in confinement both in 1915 and in 1916 which did extrude eggs for two years in succession. Moreover, Mr. T. Anderton, the superintendent of the Marine Fish-hatchery, Portobello, New Zealand, reports annual spawning by 11 out of 15 lobsters in 1911, nineteen out of 21 in 1910, and twenty-three out of 23 in 1909. In addition to contradictory facts like these, the theory is faced with the further difficulty of explaining how it happens that 50 per cent of the females are not carrying eggs if they spawn every second year. Of course, those who believe in annual spawning have the greater difficulty still of explaining how it happens that 100 per cent of the females are not carrying eggs. A believer in biennial spawning who criticizes our mating experiments by saying that the 26 females out of the 105 at Long Beach would have spawned anyway whether in pens or in the open sea, would be bound to explain why there were not 52 of them with eggs in place of 26. Similarly, he would have to explain how it was that only 8 extruded eggs at St. Andrew's in place of 10. At Bay View he would be met with the greater difficulty still of explaining how it came about that 14 spawned out of 21, when according to his own theory only half of the 21 should have done so. The fact is that the theory breaks down completely upon even a superficial examination, and it is high time that it were discarded altogether.

A SIMPLE EXPLANATION.

A comparison of the decreasing numbers of any of our wild land animals with the decreasing numbers of lobsters will show that over-shooting on land produces similar results to over-fishing in the sea. In both, man is the destructive agent. He clears the land and shoots the game. The numbers of the adult animals dwindle, and of course, the numbers of young also. As the animals decrease, the survivors become more and more widely scattered, and mating less frequent whether the animals be deer, partridge, or ducks. So it is with lobsters. The statistics kindly furnished me by United States Fish Commissioner Dr. Hugh M. Smith, shows this beyond all question, and for our Canadian waters, Mr. Halkett's figures do the same. As the lobsters become more widely separated, mating becomes less frequent with the result that there are fewer females carrying fertilizd eggs. Moreover, if the eggs which are extruded are not fertilized, they will "go bad" and drop off sooner or later, thus greatly reducing the percentage of berried females.

On the assumption that the catch of berried females in lobster traps represents approximately the proportion of berried females on the sea bottom, the efficacy of mating in pens as a means of conserving the lobster industry may be fairly claimed to have been demonstrated by our three seasons of experimentation. To say the least, the results thus far amply justify further experiments on a larger scale, and if the results prove as satisfactory as those already achieved mating will far surpass either lobster hatching or lobster rearing as a means of conserving the lobster industry.

PART IV.

LOBSTER SANCTUARIES.

What can we do to stay the decline of our annual lobster harvest? The initiative has been taken by the Government, and it is too late now to talk about leaving the problem to either the lobster fishermen or the canners. The former do not yet realize that their industry is declining, and that it can only be saved from becoming unprofitable by united action on their part; while most of the latter know perfectly well that the industry is waning, but before their profits reach the vanishing point they may be trusted to either close up their factories altogether, or sell them to less experienced operators. The fact that 296 canneries have ceased operation since 1900 tells its own tale.

What is to be done? It is useless to look to the hatcheries as a means of replenishing our depleted waters. Rather are they agencies of destruction than of conservation, if the Bay View hatchery is to be considered a fair type of the work they do. We must therefore look elsewhere for succour—but where? If fishermen would voluntarily agree to return all berried females to the sea, a great deal might be accomplished towards postponing the evil day; but the greedy and the lawless would render this method of conservation of no avail, by not obeying the law, just as they have not obeyed it in the past.

Nor can it be said that lobster rearing plants are likely to be more effective than hatcheries. At the end of three years' experimentation, the best results are 4 per cent out of our first batch of 20,000, and 13 per cent out of our second batch of 11,500. Even if we had succeeded in rearing 40 per cent of our fry, which is the percentage reported from Wickford, Rhode Island, the success of a rearing plant is not by any means demonstrated. For, just as we know nothing about the number of fry that will grow to maturity from the operation of a hatchery, so we are equally ignorant of the numbers which will grow to maturity from the operations of a rearing plant. The best that can be said in favour of lobster rearing is that more of the fry are *likely* to become adults than are the fry of a hatchery. But that is not saying much. How many will actually grow into adults no man knows, and consequently we shall always be in the dark as to whether the rearing plant gives any adequate return for the expense of building and operating it.

The lobster industry is a huge one, the annual catch in Canada being estimated at from 70,000,000 to 90,000,000, according to an authority quoted by the Canadian Shellfish Commission in their report of 1912-13. Assuming Professor Herrick's estimate to be correct, that one adult lobster only grows to maturity from 15,000 eggs, it follows that by either natural or artificial means of conservation no fewer than about 1,200,000,000,000 of eggs would be required each year to make good the annual loss of adults. Where are so many eggs to come from? Certainly not from our fourteen Canadian hatcheries, because they furnish according to Government returns only about 760,000,000, not the one-thousandth part of what would be required to replenish the annual destruction. Let it be remembered too that this estimate of 760,000,000 fry as the output of all our hatcheries is far higher than it should be. Probably 100,000,000 is nearer the mark and if so, they do not furnish the ten-thousandth part of the fry that are required to keep the industry where it is today.

These figures are referred to not because they are considered important and convincing but because they serve to emphasize the huge scale upon which conservation must be planned if conservation is to avail anything. As well attempt to stay a city's

conflagration with a squirt as try to conserve the lobster industry with the petty output of either hatcheries or rearing plants.

The destruction is on a huge scale, restoration must be equally huge. The problem is not impossible of solution? In stemming the tide of destruction we must aim at doing big things and the two biggest things are (1) to increase the production of eggs, and (2) to care for the berried mothers. We may well emphasize the protection of berried lobsters because canners and fishermen alike affirmed this summer that they had never seen spawn-bearing lobsters so scarce. If so, we may look for a small pack of lobsters six years from now.

Coming back to our problem, the question is how can we increase the production of eggs, and how can we protect the berried females on a scale big enough to cope with the annual destruction by canners and fishermen. Certainly not by mating on the petty scale on which our experiments have been carried on during the past three summers. Little enclosures 10 feet by 20 feet with a couple of dozen females impounded in them are well enough for demonstration purposes, but cannot achieve anything as conservation agencies. But prohibited and protected bays of several square miles of area—lobster sanctuaries—in short, well stocked with thousands of full-grown lobsters would in a few years make a great difference in the annual catch. It cannot be too clearly understood that by sanctuaries I do not mean lobster pounds of small areas enclosed by costly walls. I mean large natural bays or harbours if possible with narrow entrances which are to be set apart by Government specially for lobster culture.* Take for example the area from which the Bay View hatchery is supposed to draw its supply of eggs. Elsewhere in this report will be found the data upon which it has been estimated that about 30,000 spawn lobsters should have reached the seven canneries in the Bay View area during last spring. Whether this number actually did reach the canneries is not at present under discussion. The important point is that there were 30,000 berried lobsters whose eggs should have been carefully conserved by both canners and fishermen. If we accept the estimate that every berried female 10 inches long carries at least 10,000 eggs, we see that the 30,000 mothers should have furnished 300,000,000 eggs for the Bay View hatchery. How is it that only 71,000,000 reached the hatchery? Can it be that three quarters of the eggs were either "brushed" into the sea or put into the boiling pots of the factories? It would be interesting to see this mystery cleared up. But aside from that, the big question is what should be done with these 30,000 females. Some of the fishermen realizing the serious condition of the industry have petitioned the Government to close the hatchery, and propose to return all berried lobsters to the sea. Returning the spawn lobsters to the sea just where and as they were caught would not be a wise move, because the same mothers would be caught over and over again, and this would entail serious labour and loss of time upon the fishermen. It would, I think, be wiser for the hatchery launch to gather up all these mothers and place them in Bay View harbour as a sanctuary and protect them from all poachers. The mothers would hatch out 300,000,000 fry, a decided gain over the 15,000,000 fry turned out by the hatchery last summer.

Naturally enough, the fishermen who would surrender the 30,000 mothers would like to be paid commercial prices for them, say 30 cents each, but no Government could afford to pay out $9,000 per annum for spawn lobsters in one small area. A conservation policy must be a general policy, applicable alike to every accessible area of the Canadian coast, and it would cost the enormous sum of about $400,000 annually to purchase all the berried females that are caught along our Canadian coast. If these berried lobsters are to be returned to the sea when and as they are caught the fishermen must be willing to donate the berried lobsters to the Government as their contribution towards conserving the future of their industry. The Government, on its part, should patrol the prohibited bays and protect the lobsters until the eggs have hatched out.

* It is interesting to note that the Canadian Lobster Commissioners favoured spawning lobster reserves (lagoons, coves, etc.) in their report in 1898, p. 33.

That would be conservation on a big scale, but even this would not be big enough to make good the estimated catch of 1,470,000 lobsters in the Bay View area.

Lobster mating is another agency that promises well and that can easily be operated on a vast scale, if found efficacious. I am not, however, prepared to advocate lobster mating on any large scale at present. Experiments have not been carried on long enough or on a sufficiently large scale. Considering the necessarily small way in which they have been carried on during the past three years, the results show an increase of eggs ranging from 1,600 per cent to 3,000 per cent. The efficacy of mating in small pens 10 feet by 20 feet has been clearly demonstrated by the Biological Board. What is needed now is demonstration on a larger scale. Two or three large areas like the southwest end of Long Beach Pond, N.S., should be used next summer. If 1,000 males and 1,000 females were placed in such a sanctuary for July, August and September we should know whether mating is likely to be a success or not when tried on a larger scale. If the Baker pond, Cape Breton, is suitable (it may easily equal Long Beach) then it, too, should be pressed into service as a mating sanctuary for next summer. With the results of mating 4,000 or 5,000 lobsters before us next year, we should be in a position to know more definitely whether we may look with confidence to mating on a large scale as a conservation agency for the future.

But let us proceed slowly. As pointed out in my report of last year, there is great danger of excessive mortality if sanctuaries are too small in proportion to the numbers of lobsters which are confined in them. Confinement and restraint of movement press heavily upon nearly all wild animals. Thus the death rate among lobsters long confined in Long Beach pond was high. The U. S. has had a similar experience. In the Fisheries Service Bulletin, issued at Washington for June, 1916, page 4, under the heading "Lobster Culture in Maine," we are told that of 17,808 berried lobsters placed in Pemaquid pound, Maine (area ⅔ acre), in the summer of 1915, only 12,910 were alive in April of 1916. The editor adds, "this heavy loss, amounting to nearly 29 per cent, and the comparatively poor results in egg collections, can only be accounted for by the severe weather conditions to which the stock was subjected during the early part of the winter." In my judgment, a portion at any rate of this serious loss may fairly be credited, not to the severe winter, but to the close confinement of a large number of animals in an area much too small for their comfort and health. That this conclusion is a fair one is evident from the fact that the annual loss in the Pemaquid pond varies from 15 per cent to 30 per cent. These facts show that our lobster sanctuaries must be carefully selected—neither too small nor too large. They should be sufficiently large to accommodate a large number of mating stock, and should be chosen only after careful examination by an expert biologist. If too small, the stock will suffer, if too large the expense of looking after them and especially of capturing and examining them at the end of the season would be very great.

The duty which lies nearest to our hand now is to bridge the gulf that exists between mating in a pen 10 feet by 20 feet and mating in a bay as large as Bay View harbour—6 miles long by 1 mile wide. If it were proved by experiment during the next two seasons that commercial lobsters enclosed in an area of one or two acres, extruded from 16 to 30 times as many eggs as are found in the open sea, then the Government might safely set apart a number of large bays as lobster sanctuaries, stock them with the largest males and females that can be found, and reasonably expect in a few years to stem the tide of destruction. The cost of one such experiment would range from $1,600 to $1,800. But the cost must be met and the experiment must be tried before it would be safe to conclude that a large bay or sanctuary for mating lobsters would necessarily be successful. The principle of a National Park on land for the conservation of our forests and wild game is clearly the principle upon which we must try to conserve our lobster industry.

PART V.

GENERAL REPORT UPON THE OUTPUT OF BAY VIEW LOBSTER HATCHERY FOR 1916.

I made a detailed examination into the numbers and condition of the eggs and fry in the Bay View Hatchery during the season of 1916, with the co-operation of the Department of Naval Service (Fisheries branch).

From the point of view of the conservation of the lobster industry the output of living fry from the hatchery is far from satisfactory. The superintendent tells me that

Fig. No. 2.—Bay View Lobster Hatchery from the west. In front of the building is seen the white boat-house. To the left is the wharf and the buildings in the distance are Burnham and Merrill's lobster canning factory.

he took in this season, 288 quarts of spawn; that this spawn was put into 214 hatching jars representing a possible 71,000,000 of fry, if all the fry hatched out.

Basing my estimate upon facts and considerations to be submitted later on, I judge that not more than 15,000,000 fry were returned alive to the sea. A much smaller estimate could easily be defended when all the circumstances are considered in connection with the age of the spawn; its removal from the mother at the canneries; its transportation to the hatchery; its treatment in the hatching jars, and the distribution of the fry in the sea.

PURPOSE OF THE HATCHERY.

The Bay View Hatchery is intended to conserve the eggs of the berried lobsters which are received at seven lobster canneries within a radius of some seven or eight

miles from the hatchery. Each fisherman using as many "traps" as he can manage, (fig. 3) brings his catch to the canning factory each forenoon. The females which carry eggs, (about 4·2 per cent in this area) are sorted out from the rest; the eggs are removed from the body and the lobsters then transferred to the boiling pot and canned. The Fisheries Department pays the canner for the eggs, and the canner pays the fishermen for the mother lobster. A fisherman, therefore, who is within the bounds of a cannery suffers no pecuniary loss, whereas his brother who fishes outside the bounds of a cannery does suffer loss, because he is required by law to return his berried lobsters to the sea without being paid for them.

Each forenoon two employees of the hatchery, in a gasolene launch, transport the eggs from the seven canneries (in shallow trays contained in a box) to the hatchery, some of them a distance of about twenty miles. The eggs are deposited in the launch between 12 and 1 p.m., and are landed at the hatchery between 5 and 6 p.m.

Fig. 3. – Parlour Lobster Trap. Note the two "ring" entrances to the vestibule, one at the end, the other at the side. Another ring opening leads from the vestibule to the "parlor" from which the escape of lobsters is impossible, unless a slat comes off or the netting gives way.

On arrival at the hatchery, they are transferred to hatching jars, similar to those shown in figure 4. The hatchery superintendent is authorized under printed instructions to put "from two to three quarts of eggs" into each jar, and sea-water is kept running into and out of the jars, as long as fry continue to hatch out. Employees are instructed to keep stirring the eggs with a wooden spoon, night and day, so as to prevent them from becoming massed together and suffocating each other—an operation rendered necessary partly by the fact that too many eggs are placed in each jar.

At the end of several days or weeks, depending upon the age of the eggs and the temperature of the water, the fry hatch out and pass from the jars along small sluiceways into large tanks (figure 5) in which they remain usually not longer than twenty-four hours. From the tanks they are siphoned into pails and then transferred to the gasolene launch in barrels. The launch transports them to different areas in Northumberland straits, where they are siphoned into the sea.

Fig. No. 4.—Bay View Lobster Hatchery. View of sixteen hatching jars. From a tap above a stream of sea-water flows into each jar passing down a central glass tube to the bottom, and then flowing up to find exit by an overflow lip at the side. The effect of this flow of water from the bottom is to prevent the eggs from massing together and suffocating the unhatched fry.

Fig. No. 5.—Bay View Lobster Hatchery. Interior view showing a "battery" of hatching jars (two long tiers) on each side. The retaining tanks for newly hatched lobster fry occupy the middle of the hatchery.

CAUSES OF DEATH.

Here then are some seven or eight operations and conditions that inevitably determine the number of living fry which can be distributed from a hatchery:—

1. Mixing new eggs, that is, eggs of 1916 with old eggs, or those laid in 1915.

2. The care given to the mother lobsters by the fishermen, followed by the care with which the eggs are scraped from the mother.

3. The storage of the eggs in fresh or in stale sea-water from the time they are removed from the mother until the launch comes for them.

4. The care exercised in their transportation in trays and boxes while on the way to the hatchery.

5. The care and attention bestowed upon the eggs, while they are in the hatching jars.

6. The quality of the water which is pumped to the hatchery jars from the sea.

7. The number of eggs placed in each jar in proportion to the volume and flow of water.

8. The length of time the fry remain in the tanks, and the manner in which they are cared for, also their transportation out to sea, and their distribution therein.

Let us consider these various operations in some detail and in the order indicated above.

1. *Loss through mixing eggs.*—That the fishermen would bring to the canneries some lobsters bearing eggs, of 1915-16, and other lobsters bearing eggs of 1916-17, is exactly what any one would expect, who has even an elementary knowledge of the natural history of the lobster. By all odds the majority of females "lay eggs," or more correctly speaking, extrude eggs, between the 15th of July and the 20th of August, in our climate. But while this is true of the majority, it is also true that quite a number extrude eggs during the latter part of June and probably a larger minority still extrude their eggs during the latter part of August, and well into September. In other words, the total egg-laying season extends from about June 15, till probably September 15.* Diagrammatically, it may be represented as follows:—

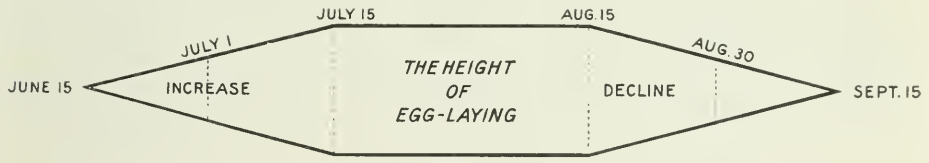


FIG. 6

Now, it is the early eggs of June, possibly of May, that are brought to the hatchery and are mixed with those which will soon hatch out, and which of course were laid the previous year. The spring eggs will not hatch out at all this season and represent a dead loss.

Evidence that old eggs (1915) were mixed with new eggs (1916) at the Bay View Hatchery was first noted by Professor MacClement about the middle of June, and the fact was pointed out to the men on the hatchery launch. Furthermore, Mr. A. B. Dawson examined on three different days (June 23, 24, and 27), 5,076 lobsters brought to Burnham and Morrill's canning factory by twenty-three fishermen. Of the total females, 2,107, only 93 carried eggs, or 4·2 per cent, and among these 93, there were 15 which bore newly extruded eggs. These eggs went into Bay View Hatchery and helped to swell the volume of unhatched and dead eggs.

The evidence of the hatchery jars themselves corroborated the evidence of the two observers referred to. On my arrival at the hatchery on July 7, the superintendent

* See Appendix, in which evidence is submitted to show that more lobsters extrude eggs in September than in either July or August.

brought me samples of the last eggs delivered at the hatchery, viz., those of June 28 or 30. Eggs of this date were selected for examination, because I am informed that the general experience at the hatcheries is that the latest eggs to be received are those from which fewest fry hatch out.

Examination of these eggs under the microscope showed that between 10 per cent and 15 per cent of them were eggs extruded this spring (1916) and were really eggs of this season, whereas the eggs collected earlier this season were those which had been extruded in 1915. Here then lay the first cause for the failure of the hatcheries to turn out a full percentage of living fry. Of course no one who recognizes the difference between the ages of the eggs would expect the two kinds to hatch at the same time, any more than he would expect eggs under a hen for two weeks to hatch at the same time as eggs under her for two days.

If the hatching is to be successful then the two kinds of eggs must be kept separate. In fact lobsters carrying newly extruded eggs should not be taken to the canneries at all, and of course, the eggs should not be removed. Placing them in the hatching jars along with the eggs of 1915-16 merely helps to kill the good eggs of 1915-16, and increases the destruction of the eggs which normally will not hatch out until 1917.

LOSS BY CARELESS HANDLING.

2. In the removal of the eggs from the mother lobster, three points should be emphasized. First, the mother lobster should either be towed to the cannery in a specially constructed car through which fresh sea water passes so that her eggs are always in sea water, or she should be kept under sea-weed and shaded from the sun's rays.

Eggs are delicate structures. A warm wind will dry and kill them, while rough handling will injure the baby lobster inside. Hence, the second point is that the eggs should be gently and carefully handled, when being scraped from the abdomen of the mother.

Thirdly, there must be absolute cleanliness of the scraper (spoon), the hands of the operator, the vessel into which the eggs are scraped, and the seawater contained in the vessel, otherwise the spores of fungi will get among the eggs and cause loss after they reach the hatching jars.

Lastly, plenty of fresh seawater should be supplied to the eggs every half hour, until they are transferred to the hatchery launch.

LOSS THROUGH DIRT.

3. The trays and boxes in which the eggs are kept on their way to the hatchery cannot be kept too clean. After transferring the spawn to the hatching jars, the trays and boxes should be thoroughly scrubbed with clean soap and water, and rinsed in boiling hot water so as to remove all traces of eggs, that may have been dirty or may have died. Drying the trays afterwards in the sun is a good way of insuring cleanliness.

On the journey to the hatchery, fresh seawater should be gently poured over the trays every half hour, and the boxes should be shaded from the direct rays of the sun. It would be a simple matter by means of a pump driven from the launch engine, to have a gentle stream of fresh sea water play over the eggs in the trays during the whole journey.

LOSS IN THE HATCHERY JARS.

4. The care of the eggs while in the hatchery jars must be unremitting, both night and day, if success is to be achieved. In the first place, little more than a pint of eggs should be put into a jar. If more than a quart is used, the mere weight of the eggs

at the top of the mass tends to smother the ones lower down. Besides, too many eggs act as a filter and make the sediment which is pumped in through the water pipes accumulate at the bottom of the jars. Any day during the latter part of the hatchery season, one could see a quarter of an inch or more of red mud, sand and organic matter lying below the eggs. So discoloured and murky was the water at times that it was impossible to see the bottom of our rearing boxes, only two feet deep, or to see the adult lobsters in our compartments, only three to four feet deep under the wharf.

While better results could probably be attained by purer water, it must not be inferred that this was the chief cause of the high death rate among the eggs. It was not. A much more important cause as already pointed out was the excessive number of eggs placed in the hatching jars. This very excess retained minute animals and plants below and throughout the close mass of eggs. Ultimately these organisms played havoc with the spawn. Towards the middle of July, dozens and dozens of minute "animalcules" could be seen with the naked eye at the bottom of all the hatching jars, and at the end of the season the sense of smell proved that each jar contained a putrefying mass of dead eggs.

The variety and number of these organisms are surprising and may be judged from the following list of diatoms and other forms found in tow netting from one tap of Bay View Hatchery for 12 hours. The determination of genera and species was made by Miss Fritz, under the supervision of Professor Willey, of McGill University.

Name.	No.	%
Pleurosigma affine	78	26
" *angulatum*	30	10
" *balticum*	2	2/3
" *fasciola*	5	1 2/3
Skeletonema costatum	87	29
Nitzschia sigma	12	4
" *sigmoidia*	2	2/3
" *longissima*	6	2
" *closterium*	2	2/3
Coscinodiscus radiatus	6	2
Actinoptychus undulatus	2	2/3
Rhizosolenia hebetata	3	1
Rhabdonema arcuatum	2	2/3
Chaetoceras decipiens	1	1/3
Melosira (?)	30	10
Licmophora	1	1/3
Navicula (?)	10	3 1/3
" (?)	6	2
Peridinium	11	3 2/3
Ceratium	2	2/3
Cyttarocylis	2	2/3
	300	

LOSSES IN THE TANKS.

6. Attention must also be given to the fry after they have left the jars and are being collected in the retaining tanks. Whenever a sufficient number has collected they should be distributed. There are serious objections to allowing fry to remain even a few days in the tanks. There is death through cannibalism, death through lack of food and death through muddy water. In our rearing boxes, which are at least three times the size of the hatchery tanks, the death-rate during the first week is very high, even although we feed them every two hours. The death-rate in the hatchery tanks must be equally high, hence the necessity for distributing the fry two or three times a day, whether many or few are hatching out.

LOSSES IN DISTRIBUTION.

7. Lastly as regards distribution, it is doubtful whether there is not considerable loss of life during the transportation of the fry from the hatchery to where they are planted,

especially if the journey is far. The barrels used at Bay View for this purpose are the ordinary 31½ gallon ones. As many as 5,000,000 fry are reported as being carried in one of these barrels at one time,—a number which would certainly cause suffocation and death among the fry, especially if the stale water was not removed and fresh sea-water supplied during the journey. It would be a very simple matter to work a small pump from the engine and thus furnish a continuous stream of fresh water to the barrel. The same pump could be used for supplying fresh seawater to the eggs on their way to the hatchery.

LOSS IN CLOSING HATCHERY.

To understand how a loss may occur in closing, one must remember that the egg-hatching season extends, at Bay View, from about June 15 to August 15. The earliest hatching at Jeddore, N.S., was found to be June 16, and we had females hatching in our compartments at Pictou as late as August 17. There are, no doubt, females which hatch their eggs outside of these dates, but they are few in number. We may therefore represent the egg-hatching season by a diagram similar to the egg-laying one, figure 6, but occurring a month or six weeks earlier.

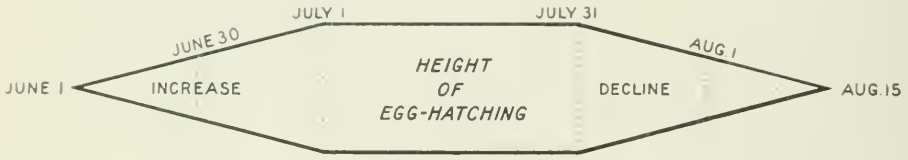


FIG. 7

The beginning of hatching, the rate of increase, its maximum, its decline will depend upon the egg-laying period of the previous year, and to a considerable extent upon the temperature of the water. In a cold spring, when the ice remains long in the straits, the egg-hatching will begin later and end later. To make the matter clearer, let us try to follow the history of eggs that are spawned late in any season, say September 30. They are carried by the mother over the winter for 10½ months, or if the water remains cold, for 11 months. A cow, a ewe, or a mare carries a single egg which develops into a calf or a lamb or a colt, inside of the animal's body for a fixed number of weeks or days. Somewhat similarly a mother lobster carries her thousands of eggs on the outside of her body, and hatches them out in due time also. If they are extruded late in any season, they are due to hatch out late the next season, August 1, or it may be August 15. Consequently if the hatcheries are ordered closed at the same date every year, it will happen that in a late season many unhatched eggs will have to be destroyed. At Bay View this year the order to close did not affect the output of fry at all, for the simple reason that the last 42 jars of eggs had all rotted in the hatchery jars and were all emptied out on July 17, whereas the order to close did not come into effect until July 20.

CLASSIFICATION OF EGGS.

The length of the egg-hatching season, about June 1 to August 15, may have a direct bearing upon the loss of eggs, though I had no opportunity of testing the matter. For, during this period of eight or ten weeks, there are eggs of different ages hatching out on different days throughout the period, simply because they were laid at different dates 10½ or 11 months before. In the hatchery the early hatching fry leave behind in the jar, the egg-capsule, and along with it the epidermis of their first

moult. I do not forget that a portion of this matter passes away in the running water. Enough of it remains in the jars to assist in causing trouble. Decomposition of both membranes takes place with resulting chemical compounds, which must be poisonous for eggs which hatch later in the same jar. The bad effects are aggravated by additional organic matter, which enters with the water.

To prevent the ill effects of mixing eggs of different ages they should be classified on the basis of age, as was recommended, it is interesting to observe, in a bulletin issued by the department twenty-five years ago (1892). Into one set of jars should be placed all eggs that would hatch early, into another sea of jars should be placed all eggs that would hatch later, and so on, until there were at least three sets of jars, each set with eggs of about the same age. In this way all eggs of the same age would hatch about the same time and consequently there would be few late hatching eggs in jars that were poisoned by the decomposing membranes of the early hatching ones. As well might a farmer sow a field with wheat, some of it May 1, some of it June 1, and some July 1, and expect it all to ripen at the same time, as to expect all eggs taken at random from different females to hatch out about the same time.

ESTIMATE OF DEAD EGGS.

As already stated, an estimate of 15,000,000 of living fry would be an outside one for the output of the hatchery this season. A more conservative estimate based upon actual count of living fry in the hatching jars, as compared with the dead ones, and based also upon an inspection of the number of fry swimming in the tanks on different days, might easily reduce the output to 10,000,000 or 12,000,000.

It might be of interest to give some of the details of the microscope examinations made by Mr. Dawson and myself, the second week of July, on eggs received at the hatchery at different dates.

In contrast with the deplorable condition of the eggs of June 28 and 30, already referred to, those of May 21 and 22 were fairly satisfactory. Sample jars of these collections were also furnished me by the Superintendent. About a dozen different egg-masses from different lobsters were removed from a jar and separated into individual eggs, or into small masses, by tearing them apart with dissecting needles. They were then stirred about thoroughly in a wash basin, so as to give a fairly uniform collection from different mother lobsters. The eggs were then divided into four equal portions—all four as alike as possible. One of these four portions was selected as typical of the whole collection, and every egg in this quarter portion was counted. Then every dead egg in this same portion was counted, and the percentage of dead eggs determined.

The following counts were typical of others:—

Sample 1.	17	eggs		0	bad	ones.
" 2.	77	eggs,	of which	7	were	bad.
" 3.	50	"	"	3	"	"
" 4.	100	"	"	8	"	"
" 5.	125	"	"	9	"	"
" 6.	143	"	"	14	"	"
" 7.	196	"	"	15	"	"
" 8.	135	"	"	10	"	"
Total....	843	"	"	66	"	"

The percentage of bad eggs here, about 8 per cent, would represent not recently extruded eggs, because there would be few, and, perhaps, none of these on May 21. Rather would it represent mature eggs which had died through carelessness in the canneries, or in transportation, or in the hatchery.

Mr. Dawson's examinations, made subsequently to my earlier ones, show a progressive increase in the number of dead eggs. For example:—

Sample	1.	397	eggs, of	which	61	contained	dead fry.
"	2.	111	"	"	41	"	" "
"	3.	66	"	"	17	"	" "
"	4.	150	"	"	120	"	" "
"	5.	260	"	"	60	"	" "
"	6.	70	"	"	115	"	" "

An average of about 30 per cent of dead eggs.

On July 12 another examination of the hatchery eggs was made. On this occasion the superintendent was left free to select eggs from any of the 145 jars remaining in the hatchery. Counted samples of the eggs which he brought me showed that 30 per

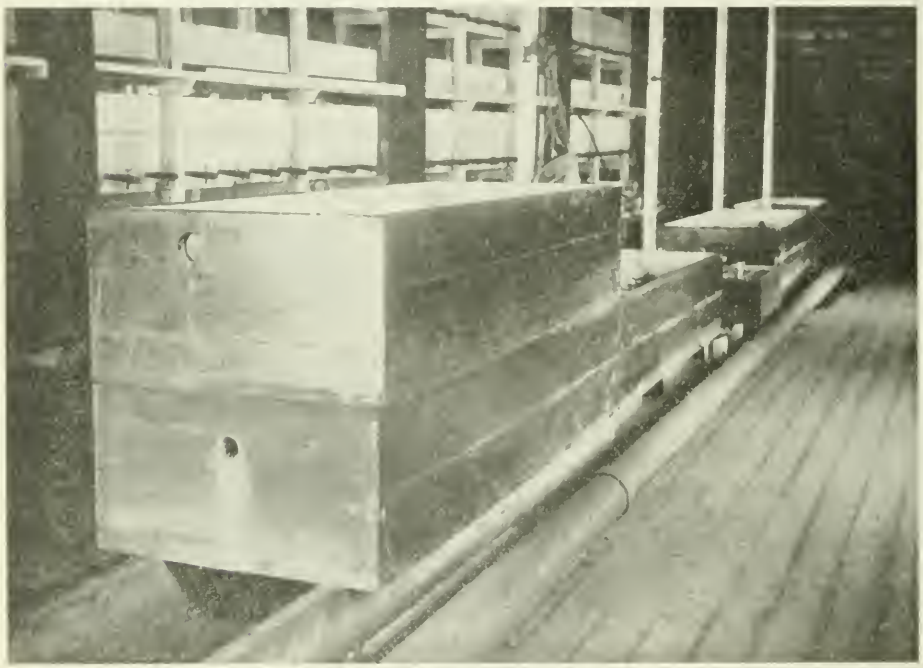


Fig. No. 8.—Four of the tanks into which newly hatched fry pass. All were disconnected from the water-supply at the end of the season. On the left one tank is seen placed upon another. While the fry are swimming in these tanks a close estimate can be easily made of the numbers which hatch out from day to day.

cent of the eggs were dead, whilst another sample of eggs, which I chose at random for myself, showed a loss of 23 per cent in dead eggs.

Four days later the hatchery was again visited. As it was getting near the end of the hatching season there were only forty-two jars in operation. A careful examination of samples from a number of these jars, in fact, a selection of the best egg-clusters that could be found, showed that at the most only 20 per cent of the eggs contained living fry. Unfortunately, it was not possible to save this remnant. They were so completely tied up, the living with the dead, that there was no possibility of saving any of them. Only two jars showed living fry swimming in the water above the eggs.

Fungus growths were visible on the surface of the eggs and showed more abundantly under the microscope. Immense numbers of "animalcules"—(Protozoa,

cyclops and sand-fleas) were attached to or were moving about freely among the living and the dead eggs. Young barnacles and mussels were found attached to the inside of the jars and glass tubes, of such a size that no one would credit their dimensions if he had not actually seen the animals.

If the whole 42 jars of July 16 could have been examined under a microscope—hand-picked, as it were—so as to separate the living from the dead, possibly a million fry might have been saved, but as matters stood at that date, no power on earth could have saved this remnant out of the possible 7,000,000 fry represented in the eggs of these 42 jars.

ESTIMATE OF LIVING FRY.

To estimate the number of living eggs in a jar is a difficult matter, and requires considerable training in the use of the microscope. To estimate the fry swimming in a hatchery tank is much simpler, and can be learnt by any intelligent person who has had a season's instruction and practical experience in a hatchery.

One method of estimating the number of fry in the tanks is based upon our experience in counting living fry at Long Beach pond, in 1914 and 1915. In our operations there it was necessary to actually count with the assistance of an automatic counter every one of the fry which we put into our large rearing boxes (10 feet by 10 feet by 4 feet deep) filled with water to within three inches of the top. In counting 5,000, 6,000, 8,000, 10,000 into such boxes, the eye soon came to form a standard of comparison, by which a very close estimate of the number of fry in a box could be made without counting. Moreover, at Long Beach, we had the experience of watching daily the diminishing number of fry in our boxes, and at the end of the rearing period —17 days—we again counted with the aid of the automatic counter our remaining living fry.

With such experience as this to guide us, a mere glance at the hatchery tanks from day to day convinced us beyond any reasonable doubt that there were not more than from 10 to 12 millions of fry hatched out at Bay View this season.

PUBLIC REPORT.

But a superintendent must not depend upon an inspection of his tanks for his estimate when he has to make a public report upon the number of fry which he plants in the sea. He must base it upon an actual count. By stirring the water so as to distribute the fry uniformly throughout the tank, and placing a cheese-cloth partition across the middle, then a second partition across the middle of one half, and if the fry are very abundant, a third partition across the quarter, the actual number of fry, in one-quarter, or one-eighth of the tank, can be counted and the number thus obtained can be used as a basis for estimating the number of fry in the whole tank.

Furthermore, the estimate made in this way may be checked by measuring the dead eggs remaining in the hatchery jars when all hatching has ceased, and then converting the measured volume into numbers, in exactly the same way as quarts of incoming spawn are converted into numbers of eggs, only, of course, the units will differ.

An effective check upon the accuracy of the estimates that may be based upon the two foregoing methods is furnished by the daily use of the microscope. As already pointed out, when I first visited the hatchery, the number of dead eggs varied in different samples between 8 per cent and 15 per cent. As time went on, however, the percentage gradually increased until within a few more days it reached 30 per cent. Then as the poison (bacteria, fungus, and "animalcules") spread still more widely among the eggs, the percentage of dead eggs increased, until on July 16 there remained alive less than 20 per cent and these contained in only 42 jars. These three methods carefully and consistently applied will give a very close estimate of the output of living fry from any hatchery.

TWO BATCHES OF EGGS.

There is yet a fourth way in which the output of Bay View hatchery may be gauged. A fisherman, whom we shall call Mr. "A," sold a lot of 61 berried females to the Biological Board for experimental purposes. About the same time he sold another lot of berried females to the Logan and Murdock cannery. Let me narrate very briefly the fate of the eggs of these two lots of lobsters. The spawn on the females that went to the canning factory was scraped off in the usual way, was transferred to the launch and conveyed to the jars in the hatchery. The spawn on the females which Mr. "A" sold to the Biological Board (approximately 600,000 eggs) was not removed at all, the mothers being simply confined in a wooden pen under the hatchery wharf.

Fig. No. 9.—Side View of the end of the Hatchery Wharf showing the latticed pens for mating and berried lobsters and admitting a tidal flow of water. Near the end of the wharf may be seen the intake pipe which supplies sea-water to the hatchery jars and rearing boxes.

Here then were two sets of spawn, both sets obtained from lobsters that were caught by the same fisherman, and on the same fishing grounds. So far as known, the fisherman took equally good care of both sets of lobsters while they were in his possession. The outer end of the intake pipe which supplies water to the hatchery eggs was not more than twenty-five feet away from where the Board's berried lobsters lay under the wharf. [See fig. 9.] The water, therefore, supplied to both sets of eggs was exactly alike in quality. The quantity was abundant for both and the temperature alike for both. The hot weather, that is, the temperature of the air, had nothing whatever to do with the different fate of the two sets. How was it then that on the 17th of July every egg in the hatchery set was dead and hatching operations closed, while in the other set the 240,000 eggs remaining, on 40 per cent of the females under the wharf, were all alive and healthy? These mother lobsters continued to hatch out fry and distribute them in the sea for more than a month after the hatchery set were dead. And this brings up the question of the value of a hatchery as a conservation agency compared

with the simple method of requiring fishermen to put all berried lobsters back into the sea.

TWO POLICIES.

Conservation by requiring fishermen to return all berried females to the sea dates back to 1873. Conservation through the agency of hatcheries dates only from 1891, when the first building for this purpose was erected at Bay View. No attempt has yet been made so far as I know to estimate the relative efficacy of the two methods. I may be permitted therefore, to break ground on the subject, it being understood, of course, that my comparison is based solely upon facts which came to my knowledge during this summer.

To make the comparison clear, it will be necessary to calculate the number of berried females that are delivered at the seven canneries. The data for this come partly from the returns to the Government and partly from the canners themselves. According to Government returns the catch of lobsters canned in each of the seven establishments from which Bay View draws its supply of eggs is as follows:—

McLeod and Stewart	634	cases.
Fred Magee, West End, Pictou Island	1,497	"
" East End, "	844	"
Burnham and Morrill	437	"
Logan and Murdock	740	"
Geo. W. Atkins	559	"
W. Smith & Co	313	"
Total	5,024	cases weighing

48 pounds each, or a total of 241,152 pounds of meat.

Now, in two canneries it is known that the average weight of green lobsters required to make 1 pound of meat varies from 3·9 to 4·1; it follows, therefore, that it would require 940,493 pounds of newly caught or green lobsters to make the 241,152 pounds of meat.

The next step in the calculation is to ascertain the average weight of a single green lobster. This was done by Mr. A. B. Dawson. He examined 2,269 fresh male and female lobsters on the 24th June, and found that they weighed 1,446 pounds, so that the average weight per lobster was ·64 pounds. Mr. Halkett found (see appendix) that 860 lobsters weighed 600 pounds or 0·7 pound each lobster.

The third step in the calculation was to find the total number of lobsters that reached all the factories, and this of course was found by dividing the total weight of green lobsters 940,493 by 0·64 giving 1,470,000 lobsters; or using 0·7 as the weight of a single lobster 1,343,000.

Now assuming—an assumption backed up by all the statistics that have been collected in Canada—that half of the 1,470,000 lobsters are females and that only 4·2 per cent of these females carried eggs, we reach the conclusion that between 28,000 and 30,000 berried females reached the canneries of the Bay View area in 1916. (That is females 735,000, of which take 4·2 per cent, approximately 30,000.)

Outside of the bounds of a hatchery, the law is that these 30,000 females must be returned to the sea. Inside of the bounds of a hatchery, the law requires the canner, and the canner requires the fisherman, to scrape the eggs off and pass them over to the hatchery officials. The question then which the scientist has to answer is: which of these two methods of conserving the lobster industry is the better one? To my mind the comparison stands thus:—

(a) *Conservation in a Hatchery.*

1. The eggs are scraped off and sent to a hatchery and the 30,000 mothers are boiled and canned, so that we have 30,000 dead mothers.

2. These 30,000 dead mothers will lay no more eggs of course.

3. Of the 71,000,000 eggs sent to the hatchery, about 85 per cent died, so that we must face a further loss of 60,000,000 dead fry or eggs.

4. It costs $2,500 annually to run the hatchery, so that here is a further serious pecuniary loss.

(b) *Conservation by Returning Berried Lobsters to the Sea.*

1. We have a straight gain of 30,000 living mothers.

2. These 30,000 living mothers will, many of them, produce more eggs in future years.

3. The 30,000 whether confined in pens as the Board confined theirs, or liberated in the open sea, would in accordance with our observations, both at Long Beach and at Bay View, hatch out almost every egg, so that we must credit this method of conservation with 71,000,000 living fry.

4. The 30,000 living mothers and the 71,000,000 living fry do not cost the country one cent.

Perhaps it should be again stated that this comparison is limited to the Bay View hatchery for the summer of 1916. No criticism is here made of other hatcheries. It is quite possible too that others achieve better results if the staffs are more intelligent and better qualified men.

FURTHER OBJECTIONS TO HATCHERIES.

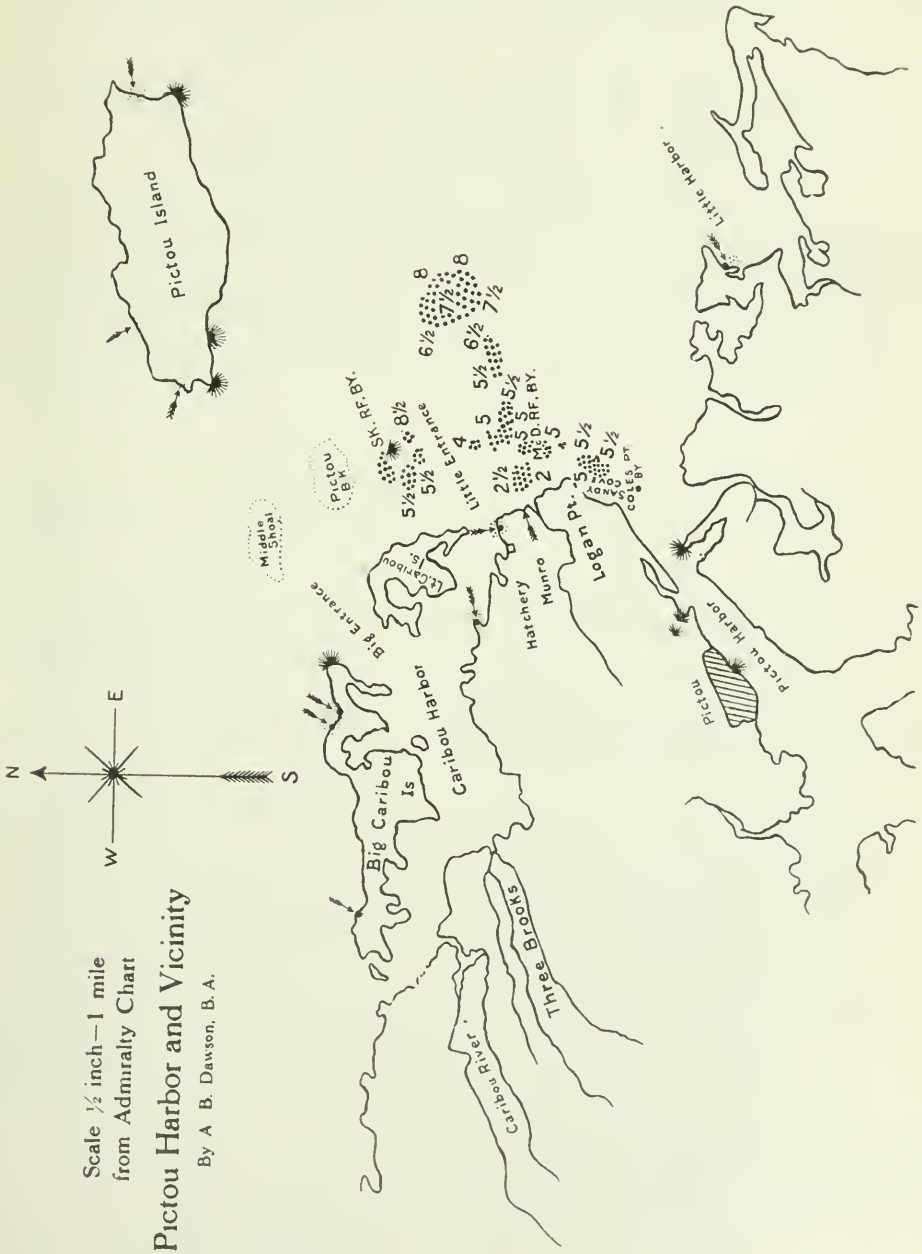
A very old criticism and one directed against the hatchery service almost from their inception was that many of the fry when deposited in the sea were soon devoured by fish. As already explained the fry are taken out in a launch some distance from shore and siphoned into the sea. As the internal diameter of the hose (used as a siphon) is about an inch, the fry are forced into the sea in such numbers that they give a cloudy appearance to the water. That this appearance attracts the attention of fish (like cunner) is undoubted, because they have been seen devouring the fry. No doubt some of the fry escape, but the loss must nevertheless be considerable. This objection to the hatchery method of conservation is specially serious inasmuch as it comes at the very end of a lengthy and expensive process. It need scarcely be stated that no hatchery staff can be held responsible for this loss. It is simply one that must be reckoned with in weighing the value of this method of conservation.

In this connection we must also take into serious consideration the conclusion reached by Professor Herrick as to the number of fry that grow into adults in the sea. His reasoned conclusion is that only one fry out of 15,000 or possibly 5,000 ever reaches maturity. If we apply this conclusion to my estimate of the output of Bay View hatchery this year, say 15,000,000, we can expect only $\frac{15,000,000}{15,000}$, or 1,000 adult lobsters from this season's operations. As the expense of running the hatchery is about $2,500 per annum, not including either interest on capital or any allowance for depreciation in building or equipment, it follows that each mature lobster, grown from hatchery fry, costs the country $\frac{\$2,500}{1,000}$, or $2.50.

Professor Herrick's estimate may be right or wrong; no man knows; but we do know that the number of adult lobsters that grow from hatchery fry is an utterly unknown quantity. Although this is undoubtedly true, still no one would be foolish enough to say that the hatcheries are valueless. They do contribute an indefinite something towards the conservation of the industry, but the question is "How much do they contribute, and do they contribute enough to make it worth while for the

country to run them?" How long would any business man continue to run a factory whose output he did not know and could not check?

No doubt the hatcheries could be made to do more effective work if the employees are given some elementary scientific training; but I do not see how the output in fry can ever equal the simple plan of returning the berried lobsters to the sea and allowing them to hatch their eggs in a natural way.



APPENDIX.

RECORDS OF LOBSTER FISHING DURING THE LAST TEN DAYS OF AUGUST, 1916, FOLLOWED BY A SIMILAR RECORD FOR FISHING DURING THE LAST FOUR DAYS OF SEPTEMBER, 1916.

Carried on by A. P. Knight under a permit issued by the Hon. J. D. Hazen, Minister of Naval Affairs, for the purpose of determining the lobster population on the bottom of the south shore of Northumberland straits, near Pictou, N.S.

Map from an Admiralty chart modified by A. B. Dawson, B.A.

The records for August were made by Andrew Halkett, Esq., and A. B. Dawson, B.A. The records for September, by Andrew Halkett, Esq.

All the lobsters in the August fishing were returned to the sea, excepting 50 males and 50 females, which were retained in our pens for mating purposes during September. At the end of September all of these which remained in the pens were liberated excepting 5 berried females; and all of those caught in the September fishing were returned to the sea, excepting 18 berried females. The 23 berried females are confined in the pens under the wharf to see whether they will live and carry their eggs through the winter.

Date. — Bull Trawl.	Location.	Fathoms.	Total No. males	Total No. females	Berried.	Remarks on Ecology, etc.
8 traps, Aug. 21	3 miles off Munroe's shore	8	31	14	0	1 Caprella.
6 traps, Aug. 21	2 miles off Munroe's shore	7	14	10	1	1 crab in trap. The berried female had a new shell.
8 traps, Aug. 21	¾ mile NE. of McDonald's reef buoy	6½	19	10	0	4 crabs in traps.
6 traps, Aug. 21	Off MacKay's house boat ½ mile.	3	21	7	0	4 crabs.
8 traps, Aug. 22	3 miles off Munroe's, on rock bottom	8½	33	27	1	Few crabs. Berried female had an old shell.
*7 traps, Aug. 22	2 miles off Munroe's, on rock bottom	5½	32	20	0	Brown Algæ, Bryozoa, Cunner.
6 traps, Aug. 22	Off Graham's reef ½ mile	2½	13	6	0	1 Gammarus.
8 traps, Aug 22	Off Graham's reef 1½ miles. Rock bottom	6½	25	14	0	
9 traps, Aug. 22	McDonald's reef ¼ mile NE. Rock bottom	5	21	8	1	Isopods. Few crabs. Female recently hatched.
10 traps, Aug. 22	Sandy cove ½ mile off. Rock bottom	5	60	29	0	Crabs. 1 male with dense algæ growth on carapace.
10 traps, Aug 23	Sandy cove ½ mile off, on mud	5	64	24	1	Berried female with old shell. Few crabs.
9 traps, Aug. 23	McDonald's reef buoy ½ mile NE., rock bottom	5	24	13	1	Limpet.
8 traps, Aug. 23	Off Graham's reef on sand	4½	33	13	0	Caprella.
7 traps, Aug. 23	Logan's house over Factory Pt. Rock bottom	5½	38	20	2	
6 traps, Aug. 23	Off Graham's reef ½ mile. Rock bottom	2½	18	12	0	

*The sea water temperature off Munroe's on this occasion was 64° F.

Date. — Bull Trawl.	Location.	Fathoms.	Total No. males	Total No. females	Berried.	Remarks on Ecology, etc.
10 traps, Aug. 24.....	Sandy Cove 1 mile of hard, mud	5½	72	64	0	1 Mysis, 1 Caprella.
6 traps, Aug. 24.....	½ mile E. of McDonald's reef, soft mud.....	5½	35	23	0	
8 traps, Aug. 24.....	Outside, rock bottom.....	7	39	22	0	
8 traps, Aug. 24.....	Outside, rock bottom.....	7	27	10	2	Caprella. Neither female had moulted recently, shown by shell.
7 traps, Aug. 24.....	Logan's house over Factory Pt., rock.....	6½	35	24	0	
8 traps, Aug. 24.....	¼ mile NE. of McDonald's reef, rock.....	5	15	9	1	1 Asterias. The berried female had a new shell.
10 traps, Aug. 24.....	Skinner's reef.....	5½	59	30	0	Laminaria, Fucus, Dulse on traps.
10 traps, Aug. 25.....	Skinner's reef.....	5½	63	61	0	9 crabs in 1 trap.
7 traps, Aug. 25.....	"Outside", rock bottom.....	7½	27	17	1	Female had old shell.
8 traps, Aug. 25.....	Outside, rock bottom.....	7½	32	19	0	
8 traps, Aug. 25.....	Outside, rock bottom.....	7½	28	28	1	Berried female had an old shell.
7 trawls, Aug. 25.....	Logan's house, over Factory Pt., rock.....	6½	33	23	0	
10 traps, Aug. 25.....	1 mile off Sandy Cove, hard mud	5½	72	43	1	Female with old shell.
9 traps, Aug. 26.....	¼ mile outside Skinner's reef, rock	8½	11	6	0	Sculpin.
†10 traps, Aug. 26....	½ mile S. Skinner's reef, rock....	5½	54	39	1	Cunner. Berried female with new shell.
7 traps, Aug. 26.....	"Outside", rock bottom.....	8	22	13	0	
††8 traps, Aug. 26....	Outside, rock.....	8	28	17	1	Berried female with old shell. Crepidula on rostrum.
8 traps, Aug. 26.....	Outside, rock.....	8	13	14	0	1 Nassa.
7 traps, Aug. 26.....	Inside, Logan's house over Factory Pt., rock.....	6½	19	20	2	1 scallop, 1 berried had new shell.
11 traps, Aug. 26.....	1 mile NE. off Sandy Cove, hard mud.....	5½	64	46	0	
10 traps, Aug. 28.....	1 mile off Sandy Cove.....	5½	77	44	1	Female (berried) had a new shell.
11 traps, Aug. 28.....	Skinner's reef, S. ½ mile.....	5½	54	24	0	Sponge.
7 traps, Aug. 28.....	Outside.....	7½	17	8	2	Both berried females had old shells.
8 traps, Aug. 28.....	Outside.....	8	11	11	0	1 sculpin.
9 traps, Aug. 29.....	Skinner's reef.....	5½	4	2	1	Berried female had old shell.
9 traps, Aug. 29.....	Skinner's reef.....	5½	48	29	0	Rock eel. Sea urchin
11 traps, Aug. 29.....	Skinner's reef.....	6	55	36	0	1 sculpin.
7 traps, Aug. 29.....	Outside.....	7½	10	11	0	30 cunners.
8 traps, Aug. 29.....	Outside.....	8	11	10	0	
8 traps, Aug. 29.....	Outside.....	7½	19	9	1	Berried female with old shell.
8 traps, Aug. 29.....	Logan's house, over Factory Pt.	6½	11	6	0	
7 traps, Aug. 30.....	Logan's house, over Factory Pt.	6½	23	13	0	
8 traps, Aug. 30.....	Outside.....	7½	4	6	1	Berried female with old shell.
7 traps, Aug. 30.....	Outside.....	8	14	7	0	42 cunners.
7 traps, Aug. 30.....	Outside.....	7½	22	11	1	Berried female with old shell. Growing in around were barnacles, mussel and hydrozoa.
9 traps, Aug. 30.....	Skinner's reef.....	6	17	7	0	

†The sea water temperature was 64° F.
††The sea water temperature was 64° F.

Date. — Bull Trawl.	Location.	Fathoms.	Total No. males	Total No. females	Berried.	Remarks on Ecology, etc.
9 traps, Aug. 30	Skinner's reef	5½	39	32	0	
11 traps, Aug. 30.	Skinner's reef near buoy	6½	37	36	1	Berried female had old shell.
6 traps, Aug. 31	Outside	7½	13	7	0	
7 traps, Aug. 31	Outside	7½	24	9	0	20 cunners.
7 traps, Aug. 31	Outside	7½	16	17	1	Berried female had old shell.
8 traps, Aug. 31	Outside	8	19	18	2	Both berried females had old shells.
			1,739	1,136	28	According to Mr. Dawson's observations.
			1,738	1,130	28	According to Mr. Halkett's observations.

Results of re-setting of lobster traps at Bay View, N.S., during the last four days in September. (Tables compiled by Mr. A. Halkett).

27th—AFTERNOON.

	Traps.	Males.	Females.	Remarks.
Bull trawl 1.—About 1½ miles off Caribou Island. 4½ fathoms when sounded.	1	4	4	
	2	3	2	
	3	4	1	
	4	6	4	
	5	3	2	
	6	3	3	
	7	1	3	One a seed lobster.
	8	4	3	
		—28	—22	
Bull trawl 2.—About 1 mile off Caribou Island. 3½ fathoms when sounded.	9	3	2	One a seed lobster.
	10	4	1	
	11	5	2	
	12	0	0	Broken lathe. A crab (included below) and a cunner.
	13	2	0	
	14	4	1	Trap with 2½ in. dia. entrances. A crab (included below) and some 9 cunners.
	15	3	3	
	16	4	2	
	17	4	1	
	18	3	1	A crab (included below) and a flatfish.
		—32	—13	
		60	35	There were in all in the traps some 43 crabs (*Cancer*) including the few mentioned above.
		= 95		

SESSIONAL PAPER No. 38c

RESULTS of re-setting of lobster traps at Bay View, N.S., during the last four days in September. (Tables compiled by Mr. A. Halkett)—*Con.*

28TH.—MORNING.

	Traps.	Males.	Females.	Remarks.
Bull trawl 1.—4½ fathoms when sounded.	1	4	4	
	2	4	2	One a seed lobster.
	3	0	0	Door of trap open.
	4	3	1	
	5	2	1	
	6	3	3	One a seed lobster
	7	0	0	Door of trap open.
	8	4	1	
		—20	—12	
Bull trawl 2.—4 fathoms when sounded.	9	1	4	
	10	1	3	
	11	3	2	One of the males with barnacles on had not moulted.
	12	0	0	Broken lathe.
	13	5	2	
	14	1	1	Trap with 2½ in. dia. entrances. Some 8 cunners.
	15	5	1	
	16	4	3	One a seed lobster
	17	3	1	
	18	5	1	A seed lobster.
		—28	—18	
Bull trawl 3.—5 fathoms when sounded.	19	3	2	
	20	3	4	
	21	7	5	
	22	4	4	
	23	3	2	
	24	5	2	
	25	1	2	
		—26	—21	
		74	51	There were in all the traps some 42 crabs (*Cancer*).
		=	125	

28th.—AFTERNOON.

Bull trawl 1—About 1 mile NW. off Skinner's Reef Light Buoy. (The traps had been shifted.) 5 fathoms when sounded.	1	7	4	One a seed lobster.
	2	3	0	
	3	1	2	
	4	4	3	
	5	4	1	
	6	5	0	
	7	3	3	
	8	4	2	
		—31	—15	
Bull trawl 2.—3½ fathoms when sounded.	9	8	3	
	10	4	1	
	11	3	2	
	12	2	5	One a seed lobster.
	13	6	3	
	14	3	0	Trap with 2½ in. dia. entrance.
	15	3	5	
	16	4	2	
	17	2	1	
	18	6	0	
		—41	—22	
Bull trawl 3.—4 fathoms when sounded.	19	6	2	One a seed lobster.
	20	7	4	
	21	4	3	
	21	4	3	
	22	5	3	One a seed lobster.
	23	5	1	
	24	3	2	
	25	2	2	
		—32	—17	
		104	54	There were in all in the traps some 25 crabs (*Cancer*).
		=	158	

RESULTS of re-setting of lobster traps at Bay View, N.S., during the last four days in September. (Tables compiled by Mr. A. Halkett)—*Con.*

29TH.—MORNING.

	Traps.	Males.	Females.	Remarks.
Bull trawl 1.—5 fathoms when sounded.	1	3	3	
	2	2	1	Dogfish, female.
	3	2	1	
	4	2	3	
	5	2	1	
	6	2	1	A seed lobster.
	7	x	x	Trap lost.
	8	3	2	One a seed lobster.
		—16	—12	
Bull trawl 2.—5 fathoms when sounded.	9	3	0	
	10	6	2	
	11	3	6	
	12	8	3	
	13	2	4	Trap with 2½ in. dia. entrances Two crabs.
	14	9	1	
	15	9	1	
	16	4	2	
	17	4	3	
	18	4	0	One of those males had not moulted very long. Eel pout.
		—52	—22	
Bull trawl 3.—5 fathoms when sounded.	19	6	7	
	20	6	6	
	21	5	2	
	22	4	7	
	23	0	2	One a seed lobster.
	24	6	3	
	25	3	3	
		—30	—30	
		98	64	There were in the traps in all some 30 crabs (*Cancer*) including the 2 mentioned above.
		=162		

29TH.—AFTERNOON.

Bull trawl 1	1	4	1	
	2	4	2	
	3	5	3	
	4	2	1	
	5	4	1	
	6	2	4	
	7	x	x	Indicating the trap which was lost.
	8	0	0	Door of trap open.
		—21	—12	
Bull trawl 2	9	4	1	A seed lobster.
	10	5	6	One a seed lobster.
	11	9	1	
	12	5	1	
	13	2	0	Trap with 2½ in. dia. entrances. Four cunners.
	14	6	1	
	15	5	2	
	16	4	1	
	17	1	2	
	18	2	2	
		—43	—17	
Bull trawl 3	19	4	2	
	20	4	6	
	21	4	2	
	22	5	3	
	23	4	1	
	24	5	5	One a seed lobster.
	25	3	3	One a seed lobster.
		—29	—22	
	‡	1		
		94	51	There were in all in the traps some 18 crabs (*Cancer*).
		=145		

SESSIONAL PAPER No. 38c

RESULTS of re-setting of lobster traps at Bay View, N.S., during the last four days in September. (Tables compiled by Mr. A. Halkett)—*Con.*

30TH.—MORNING.

	Traps.	Males.	Females.	Remarks.
Bull trawl 1	1	6	2	
	2	x	x	Indicating the trap which was lost.
	3	2	3	
	4	7	2	
	5	4	2	
	6	4	3	
	7	0	1	Door of trap open.
	8	2	3	
		—25	—16	
Bull trawl 2.—6 fathoms when sounded.	9	1	2	
	10	7	2	
	11	1	7	One a seed lobster.
	12	3	2	
	13	3	3	Trap with $2\frac{1}{2}$ in. dia. entrances.
	14	8	5	
	15	7	1	
	16	6	3	
	17	2	3	
	18	3	1	
		—41	—29	
Bull trawl 3	19	6	5	
	20	5	5	One a seed lobster.
	21	6	3	One of the males had not moulted long.
	22	4	6	
Traps lifted and taken in.	23	1	1	Door of trap open.
	24	4	6	
	25	3	2	
		—29	—28	
		95	73	There were in the traps in all some 21 crabs (*Lancer*).
		= 168		

30th.—RELIFTED AND TAKEN IN BY NOON.

Bull trawl 1	1	0	0	
	2	x	x	
	3	1	1	
	4	1	1	
	5	0	0	
	6	0	1	
	7	0	0	
	8	4	3	
		— 4	— 3	
Bull trawl 2	9	0	1	
	10	1	1	
	11	1	0	
	12	0	2	
	13	0	1	2 cunners. $2\frac{1}{2}$ in. dia. entrance traps.
	14	0	0	Door of trap open.
	15	0	1	
	16	1	0	
	17	x	x	Another trap lost.
	18	0	0	Door of trap open.
		— 3	— 6	Crabs, if any, included in above.
		7	9	
		= 16		

RECAPITULATION.

	Males.	Females.	[Seed.]	Total.
Sept. 27th. Afternoon	60	35	[2]	95
" 28th. Morning	74	51	[4]	125
" 28th. Afternoon	104	54	[4]	158
" 29th. Morning	98	64	[3]	162
" 29th. Afternoon	94	51	[4]	145
" 30th. Morning	95	73	[2]	168
" 30th. Re-lifted by noon	7	9	.....	16
	532	337	[19]	869

1916—	Pounds.	Lobsters.
September 27, afternoon	68	93
" 28, forenoon	32	45
	100	138
September 28, forenoon	57	76
" 28, afternoon	43	56
	100	132
September 28, afternoon	73	98
" 29, forenoon	27	39
	100	137
September 29, forenoon	80	120
" 29, afternoon	20	30
	100	150
September 29, afternoon	79	110
" 30, forenoon	21	25
	100	135
September 30, forenoon	100	158*

Average number of lobsters per 100 pounds in above 600 pounds—141§, thus:—

100 pounds.	138 lobsters.
100 "	132 "
100 "	137 "
100 "	150 "
100 "	135 "
100 "	158 "
600 "	850 " Average weight ·7 pounds for each lobster.

*Includng one seed lobster to make the full weght.

FORTY-NINTH ANNUAL REPORT

OF THE

FISHERIES BRANCH

DEPARTMENT OF THE NAVAL SERVICE

1915-16

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY J. DE L. TACHÉ,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1916

[No. 39—1917]

To Field Marshal His Royal Highness Prince Arthur William Patrick Albert, Duke of Connaught and of Strathearn, K.G., K.T., K.P., etc., etc., etc., Governor General and Commander in Chief of the Dominion of Canada.

MAY IT PLEASE YOUR ROYAL HIGHNESS:

I have the honour to submit herewith, for the information of Your Royal Highness and the Parliament of Canada, the forty-ninth Annual Report of the Fisheries Branch of the Department of the Naval Service.

I have the honour to be,
Your Royal Highness's most obedient servant,

J. D. HAZEN,
Minister of the Naval Service.

DEPARTMENT OF THE NAVAL SERVICE,
OTTAWA, September, 1916.

ERRATA.

Page 362—Fishing Bounty, expenditure column—$158,678.85 should read $158,741.05.

Page 369—Fishing Bounty, 1915-16, expenditure column—$158,678.85 should read $158,741.05.

Page 438.—Officer Fred. Kennedy's district should read: "The County of Bonaventure and Gaspe county, from Bonaventure county line to Fame Point.

Page 439.—Officer T. Migneault's district should read: "From Quebec to the Saguenay river on the north shore and from Quebec to Fame Point on the south shore of the St. Lawrence river.

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DEPUTY MINISTER'S REPORT.

To the Honourable J. D. Hazen,
Minister of the Naval Service.

Sir,—I have the honour to submit the forty-ninth annual report of the Fisheries Branch of the Department of the Naval Service, which is for the fiscal year ended March 31, 1916.

The following twenty-one appendices are included:—

No. 1.—New Brunswick Fisheries.
" 2.—Prince Edward Island Fisheries.
" 3.—Nova Scotia Fisheries.
" 4.—Quebec Fisheries.
" 5.—Ontario Fisheries.
" 6.—Manitoba Fisheries.
" 7.—Saskatchewan and Alberta Fisheries.
" 8.—Yukon Territory Fisheries.
" 9.—British Columbia Fisheries.
" 10.—Oyster Culture.
" 11.—Fishing Bounty.
" 12.—Canadian Fisheries Museum.
" 13.—United States Fishing Vessel Entries.
" 14.—Fisheries Patrol Service.
" 15.—Fisheries Expenditure and Revenue.
" 16.—Fish Breeding.
" 17.—Imports and Exports of Fish.
" 18.—Inspection of Pickled Fish and Fish Canneries.
" 19.—Report on the work of the Biological Board.
" 20.—Special Lobster Fishery Statistics.
" 21.—The Outside Fisheries Staff.

Transportation of Fresh and Mildly Cured Fish.

The assistance given in this service in past years has been:—

1. A fast freight refrigerator-car service one day each week from Mulgrave and Halifax, to Montreal, the earnings on the car, on each trip west, being guaranteed up to those on a carload of 20,000 pounds plus the cost of icing car. This service was started in 1907 and is still in operation, three cars being run each week.

2. Payment of one-third of the express charges on less-than-carload lots from the Atlantic coast to points in Quebec and Ontario, and from the Pacific coast to points as far east as the eastern boundary of Manitoba. This assistance was started in 1908, and is still effective.

3. An express refrigerator-car service one day each week from Mulgrave and Halifax to Montreal, the earnings on the car, on each trip west, being guaranteed up to those on 10,000 pounds plus the cost of icing the car. The one-third rebate of the express rate was also allowed on shipments by this car.

This service was started in 1913, and was continued in 1914, but was then discontinued. It did not prove as beneficial as was anticipated. Indeed, it was not availed of, in 1914, to nearly the extent that it had been during the previous year. Moreover, the railway was adverse to hauling this car. Its two through express trains—Ocean Limited and Maritime Express—are heavily loaded throughout the season, and the carrying of an extra car involves the danger of failure to keep up to schedule time. Also, the available refrigerator cars did not seem to be properly constructed for running on express trains, as on more than one occasion they left the track to the danger of the whole train.

On the other hand, the weekly refrigerator fast freight service from Mulgrave, N.S., to Montreal, was proving eminently satisfactory, and was being more and more used. Indeed, shipments for the Friday markets are now forwarded practically altogether by fast freight. The following statement gives the quantities of fish shipped by fast freight from Mulgrave, N.S., since the Government has been assisting in the service:—

	Tons.
1907	2,086
1908	2,274
1909	1,966
1910	2,484
1911	2,732
1912	2,372
1913	2,793
1914	2,800
1915	2,930

As the gross transportation charges by fast freight are less than one-third those by express, it is in the public interest that the fast freight service should be availed of, by the shippers, to as large an extent as feasible, as, obviously, fish forwarded by fast freight can be sold more cheaply than if shipped by express, and so far as the department is aware, there is no reason why, if this service is sufficiently used, it could not be developed into a practical express service. The main objection to the more general use of fast freight appears to be that the wholesalers are now unable to procure their orders in sufficient time in advance of when they are needed to enable them to have them filled by fast freight. This difficulty has been overcome so far as the Friday market is concerned, which is the heaviest one in the week, and there, therefore, seems no reason why the wholesalers, by keeping before their clients the advantages of the fast-freight service cannot induce them to forward their orders for other days earlier.

It was consequently felt that it would be beneficial to have an extension of the fast freight refrigerator-car service to more than one day per week. The matter was taken up with the Canadian government railways, which agreed to the extension of three days per week on the following conditions, providing the refrigerator-express service was discontinued:—

1. A refrigerator car for the transportation of fresh and mildly-cured fish to leave Mulgrave, for Montreal, by fast freight on Monday, Thursday and Saturday of each week, shipments from Halifax to be consolidated in this car at Truro.

2. Shippers by this car to be charged the regular less-than-carload-lot rate when their shipments were in less-than-carload lots, but shippers forwarding 20,000 pounds or more in one shipment, to be charged the regular carload-lot rate, plus $2.50 per ton for the ice used in the car bunkers.

3. Should one shipper have a carload and other shipments offer in smaller quantities, a second refrigerator car would be placed at the disposal of the shippers of smaller lots, who would pay the less-than-carload rate.

4. The department to guarantee the earnings on each car, on each trip west, when the shipments were in less-than-carload lots up to $35, plus the cost of icing the car; but this guarantee not to apply to the Saturday car, which had previously been in operation.

It was also considered that if a fast freight service were placed at the disposal of shippers from St. John, N.B., to Montreal, it would be beneficial. The matter was consequently taken up with the Canadian Pacific Railway, and in the month of August an arrangement was made by which a refrigerator car, to be hauled by fast freight, would be placed at the disposal of the shippers one day each week, should there be five thousand pounds of fish or more offering for shipment.

This extended service has not been taken advantage of to anything like the extent hoped for. Shipments from Mulgrave or Halifax were forwarded by it on only eight occasions, between June 1 and January 15. The fact that it was not being much used was brought to the attention of the shippers by the department, but it transpired that the service had become somewhat unreliable, owing, it appears, to the movement of troops and military equipment, so that the dealers preferred to use the more expensive express service than to take the risk of not having their shipments arrive on time.

The service from St. John was not used at all, throughout the season.

Fish is a home product. It costs nothing to cultivate, and the capital invested in the fisheries in comparison with the yield, is smaller than in any other food-producing industry. Fish should, consequently, be a cheap food in all parts of the country, but to make it so, adequate transportation facilities at moderate prices, must be available.

An express refrigerator-car service would best meet requirements, but at the present time it is expensive. A reasonable rate is made available by the Government paying one-third of the express charges on shipments in less-than-carload lots, but it cannot be expected that this course can be long continued. The object of this assistance was to ascertain whether, if reasonable charges were made available to the shippers, the business could not be developed into one of large proportions, making it desirable for the transportation companies in their own, as well as in the public interest, to reduce their rates and give proper facilities. This has already been practically done. An extensive and rapidly growing industry has been built up, and the time when the business will be developed to one large enough to take care of itself is, obviously, approaching rapidly. The following statement will afford an understanding of the development of the less-than-carload-lot express shipments. It shows the amounts paid by the Government, as one-third express charges, under the arrangement above explained:—

Year.	On Shipments from East Coast.	On Shipments from West Coast.
1909-10	$15,162 20	$13,541 76
1910-11	16,898 13	21,896 73
1911-12	19,620 62	35,315 10
1912-13	29,969 48	39,277 13
1913-14	37,818 85	44,114 47
1914-15	26,667 33	31,528 60
1915-16	27,122 69	34,872 56

It must not be overlooked that this statement indicates but a small part of the total business done. In addition to the less-than-carload-lot shipments by express, several carloads of halibut and salmon, per week, are forwarded by express from the Pacific coast to Winnipeg, Toronto, and Montreal, as well as the amounts shipped in carload and less-than-carload lots by fast and other freight from Mulgrave and the various points along the coast. It will be remembered that during the winter season fresh frozen fish are usually shipped from either coast in ordinary freight cars.

The guarantee for the fast freight service amounted to only $373.33, of which $132.65 were paid as icing charges.

Up to the moment, the express companies have shown no indication of any intention to reduce their rates. They maintain that their charges are already low and could not reasonably be reduced, and that their present rate from the Atlantic coast is even as low as a carload-lot rate should be, and, consequently, it is not feasible to give a carload-lot rate there cheaper than the existing less-than-carload-lot rate.

It is, however, difficult to reconcile the rate from the Pacific coast to New York or Boston, of $3 per 100 pounds, with that from the Atlantic coast to Montreal or Toronto—$1.50 and $1.75 per 100 pounds, respectively—or with the rate from the Pacific coast to such points as Calgary and Winnipeg, $2.50 per 100 pounds—keeping in view the relative distances. Moreover, the fact that there is no carload express rate from the Atlantic coast leaves no inducement for the dealers to ship in large quantities.

While it is frequently impossible for the dealers in Winnipeg to make up a carload lot for that place at one time, and it is usually so at such places as Calgary and Regina, if these places were allowed to combine they could mostly make up carload orders. On United States transcontinental roads, such a practice, commonly known as "opening in transit", has been in operation for several years, and has proved eminently beneficial in building up the industry. The car is allowed to be opened at two places in transit, at a charge of $5 for each opening, and the carload-lot rate to the farthest point is charged. The assistance that such an arrangement would be will be readily appreciated from the following:—

The carload-lot rate from Vancouver to Calgary is $2.50 per 100 pounds, and the less-than-carload-lot rate $3.50 per 100 pounds. To Regina it is $2.50 and $4.50 per 100 pounds respectively, and to Winnipeg $2.50 and $4.50 per 100 pounds. If these three places were allowed to consolidate their shipments in one car at the carload-lot rate to Winnipeg, they would each get a rate of $2.50, plus $5 for opening the car at Calgary and again at Regina.

The express companies have so far refused to introduce such an arrangement in Canada.

Experience is indicating that if the fast freight service is made absolutely reliable as to time, so that delivery of consignments when expected may be depended on, it can be used to the practical exclusion of express for through shipments. It is, therefore, of eminent importance that everything possible should be done to develop and improve this service.

The question of the spread in price of fish between the points of production and consumption, has been referred by the House of Commons to the Select Standing Committee on Marine and Fisheries for investigation during the present session of Parliament. The whole question of transportation will necessarily be involved in this inquiry, and the department feels asured that much public benefit will result. The findings of the committee will be awaited with interest.

Fisheries Exhibit at the Canadian National Exhibition, Toronto.

The fisheries exhibit at the above exhibition which was started two years ago, was repeated this year with splendid success. It was larger and better than either of the previous ones and was unquestionably one of the features of the fair. It was again awarded a gold medal.

So impressed were the directors of the fair with the two previous exhibits, that this year, Friday, September 3, was set apart by them as "Fisheries Day" at the exhibition.

As was intimated in my last report, it was felt that if a first-class fisheries restaurant were operated on the ground as an adjunct to the exhibit, it would clinch its effectiveness. This year, an arrangement was entered into with Messrs. Nasmiths, Limited, of Toronto, to operate such restaurant. The east wing of the grand stand building, which will seat about six hundred people at one time, was obtained for the purpose. An excellent fish dinner consisting of a full portion of a choice of different kinds of fish, as well as of potatoes, pie and tea, coffee or milk, was served for 25 cents. An attractive menu card, calling attention to the desirability of using fish as food in the homes of the country, was prepared in sufficient numbers to enable patrons to take copies with them should they so desire. The success of the restaurant was even greater than was anticipated. During the course of the exhibition 25,328 meals were served.

It is contended by all those engaged in the industry, that the exhibit has done much to expand the demand for fish throughout the interior portion of the country, and it seems in the public interest that at least for some years to come the exhibit and restaurant should be continued.

I wish to again express the appreciation of the department of the co-operation afforded it by the Maritime Fish Corporation, Limited, Montreal, and the F. T. James Fish Company, Limited, of Toronto, in making the exhibit the splendid success it was.

Daily Bait Reports.

During the fishing season of 1915 the department continued the system of collecting information, through its local fishery officers, concerning the location of supplies of bait on the Atlantic coast, and despatching it daily by telegram to certain seaports, where it was posted up. The telegrams were also published in the Halifax daily papers by courtesy of the editors.

In the spring season 134 telegrams were sent from the Magdalen islands, Souris, P.E.I., and Queensport, N.S., to Canso, Halifax, Lunenburg and Riverport, N.S. These contained information concerning the ice condition, in addition to information as to bait supplies.

In July and August 310 telegrams were sent from Little Bras d'Or, L'Ardoise, Canso, Wine Harbour, Tangier, and Musquodoboit Harbour, N.S., to North Sydney, Canso, Halifax, Lunenburg, Riverport, and Shelburne, N.S.; also from Lockeport, N.S., to Canso and Halifax, N.S.; from Shag Harbour, Middle West Pubnico, and Digby, N.S., to Halifax, Shelburne and Lockeport, N.S.

From September to the middle of December eighty telegrams were sent from Campobello, N.B., covering information from the counties of Charlotte and St. John, to Digby, Yarmouth, Pubnico, and Clark's Harbour, N.S.

This service continues to be of much benefit not only to masters of fishing vessels seeking bait, but to net fishermen who have supplies of bait to sell.

Fish Inspection Act.

This Act, which provides for the inspection of pickled fish, came into effect on May 1, 1915. In the preceding fall and winter the general inspector held a series of meetings of an educational nature, in the Maritime Provinces, at which the objects and requirements of the Act were explained to those concerned. Over 100 meetings were held, in addition to personal interviews with fishermen, coopers, and packers.

Inspection is not compulsory, and as it was quite unknown what number of packers would voluntarily submit their fish for inspection, at the beginning, the smallest inspection staff possible for carrying on the work on the Atlantic coast was appointed.

During the first season, in which the Act was in operation, 1,328 barrels of pickled fish were presented for inspection. Of these 1,211 were branded and 117 rejected. In addition to this several thousands of barrels of mackerel were packed at the Magdalen islands, under our inspecting officer's guidance, but were sold and shipped off before the inspector could return to inspect and brand them.

The total number of barrels branded may seem small, but it must not be forgotten that packing for the brand is a purely voluntary matter, and that we have to rely entirely upon educational and persuasive work to introduce it. Further, it has not yet had time to become sufficiently well known in the United States to cause an appreciable difference between the demand for branded and that for unbranded fish.

The result of our educational work should be more apparent during the next season.

Owing to the war conditions in the North sea, United States buyers were unable to secure their usual large supplies of pickled herring from Great Britain, Holland, and Norway, during the season of 1915.

When this became apparent, the department urged Canadian packers to endeavour to supply the deficiency by curing their herring in what is known as the Scotch method, which is described in the regulations to our Fish Inspection Act.

A few fish merchants were induced to enter this business, and got much higher prices for their product than they ever got before.

Preparations are going on in Nova Scotia, especially, for engaging in this business on an enlarged scale during the season of 1916.

It must be kept in mind, however, that unless the greatest care is taken to see that the fish are packed in barrels of the proper type, and cured exactly as this very fastidious trade wants them, we will lose our hold on the market when normal conditions again exist in Europe.

The Fish Inspection Act has, therefore, come into existence at an opportune time, and the department has taken steps not only to guide and instruct those who engage in this business, but to inspect and brand the cured product thus ensuring the quality of the pack. A trained cooper is engaged visiting cooper shops, where barrels are being made for this trade, spending a day or two in each and making sample barrels in the presence of the coopers.

An inspector has not yet been appointed for British Columbia. Conditions there are different from those on the Atlantic. Neither mackerel nor alewives are found in Pacific waters, and those desiring to engage in Scotch herring curing can get trained assistance in the province from the many Scotch coopers and curers who reside there. Fish cured under these conditions are not usually considered to be in need of inspection and branding.

Instruction and advice were given to packers through the means of pamphlets, etc., and approximately 5,000 barrels of herring were cured in the Scotch style, during 1915, on the Pacific.

If the need for inspection and branding in the Pacific province arises next season it will be duly met.

Inspection of Canneries.

As in the preceding year a regular inspection of all fish canneries on both the Atlantic and Pacific coasts was carried on during the season of 1915, to ensure the preparation and canning of fish and shell-fish, under proper sanitary conditions.

There were 636 canneries in operation during the season all of which were visited and regularly reported on.

The inspections were carried on under authority of the Meat and Canned Foods Act, but as the provisions of this Act are not considered entirely suitable for the fish canning business, new legislation will be sought for to deal more effectively with it.

Reports on the inspection of pickled fish and fish canneries, by the general inspector, form Appendix 18 of this report.

Biological Board.

A report upon the work of the biological stations appears as Appendix 19 to this report; but the following points may be briefly set forth here.

The Atlantic station at St. Andrews, N.B., had a full staff of scientific workers and splendid results were accomplished. Professors A. B. Macallum and J. Playfair McMurrich, successively, took charge of the work and directed the Station during the season.

Experiments in the curing of fish, especially finnan haddie, were carried on by Principal F. C. Harrison, MacDonald College; Dr. Olive Patterson and Dr. Clara C. Benson; including studies on the autolysis of fish tissues, and putrefactive changes due to bacteria. Cured fish of very superior quality was produced under conditions devised by the specialist who took up this branch of research.

Prof. Cox, University of Fredericton; Mr. W. H. Chase, Acadia College, N.S.; Mr. E. Horne Craigie, Toronto University, and others conducted important fishery investigations, with the aid of the station's launches, *Prince* and *Sagitta*.

The number of workers taxed the limited accommodation at the station, and an extension of the buildings has proved absolutely necessary. This extension must be carried out in 1916.

Investigations upon lobster-rearing, oyster-culture, etc., were carried on, the former at Long Beach pond, N.S., by Professors Knight and MacClement, and a staff, while the oyster work was conducted upon Prince Edward Island by Prof. A. D. Robertson, Western University, London, Ont., and Dr. Julius Nelson, New Jersey.

Dr. Johan Hjort's extensive studies on the herring and other fishes in the gulf of St. Lawrence, commenced in 1914, were continued during the season of 1915, several of the biological staff assisting on board the C.G.S. *Princess*, C.G.S. *Acadia* and patrol steamer *No. 33*.

The B.C. biological station, near Nanaimo, had a good season, reports on the life-history of the spring salmon, sockeye, coho and other species, being completed, the eggs and fry of the rock cod and Pacific herring studied; and the sea-lion question was investigated by Dr. C. McLean Fraser, Dr. Newcombe and Mr. Hamar Greenwood, who formed a special committee for this purpose.

The large series of reports, now in course of publication, as supplements to this report, will form a substantial addition to our knowledge of the fisheries of the Dominion.

GENERAL REVIEW.

Extent of Fisheries.

It is not an exaggeration to say that Canada possesses the most extensive fisheries in the world; moreover, it is safe to add that the waters in and around Canada contain the principal commercial food fishes in greater abundance that the waters of any other part of the world. The extraordinary fertility of what may be called our own waters is abundantly proved by the fact that, apart from salmon, all the lobsters, herring, mackerel and sardines, nearly all the haddock, and many of the cod, hake, and pollock landed in Canada are taken from within our territorial waters.

The coast line of the Atlantic provinces, from the bay of Fundy to the strait of Belle Isle, without taking into account the lesser bays and indentations, measures over 5,000 miles; and along this great stretch are to be found innumerable natural harbours and coves, in many of which valuable fish are taken in considerable quantities with little effort.

On the Pacific coast, the province of British Columbia, owing to its immense number of islands, bays and fiords, which form safe and accessible harbours, has a sea-washed shore of 7,000 miles.

Along this shore and within the limits of the territorial waters, there are fish and mammals in greater abundance, probably, than anywhere else in the whole world.

In addition to this immense salt-water fishing area, we have in our numerous lakes no less than 220,000 square miles of fresh water, abundantly stocked with many species of excellent food fishes. In this connection it may be pointed out that the area of the distinctly Canadian waters of what are known as the great lakes—Superior, Huron, Erie and Ontario—forms only one-fifth part of the total area of the larger fresh-water lakes of Canada.

The fisheries of the Atlantic coast may be divided into two distinct classes: the deep-sea and the inshore or coastal fisheries.

The deep-sea fishery is pursued in vessels of from 40 to 100 tons, carrying crews of from 12 to 20 men. The fishing grounds worked on are the several banks which lie from 20 to 90 miles off the Canadian coast. The style is that of "trawling" by hook and line. The bait used is chiefly herring, squid and capelin; and the fish taken are principally cod, haddock, hake, pollock and halibut.

The inshore or coastal fishery is carried on in small boats with crews of from two to three men; also in a class of small vessels with crews of from four to seven men. The means of capture employed by boat fishermen are gill-nets, hooks and lines, both hand-line and trawl; and from the shore are operated trap-nets, haul seines, and weirs. The commercial food fishes taken inshore are the cod, hake, haddock, pollock, halibut, herring, mackerel, alewife, shad, smelt, flounder and sardine. The most extensive lobster fishery known is carried on along the whole of the eastern shore of Canada, whilst excellent oyster beds exist in many parts of the gulf of St. Lawrence, notably on the north coast of Prince Edward Island, and in the Northumberland strait.

The salmon fishery is, of course, the predominant one on the Pacific coast, but a very extensive halibut fishery is carried on in the northern waters of British Columbia, in large, well-equipped steamers and vessels. The method of capture is by trawling, dories being used for setting and hauling the lines, as in the Atlantic deep-sea fishery. Herring are in very great abundance on the Pacific coast, and provide a plentiful supply of bait for the halibut fishery.

In the inland lake fisheries, the various means of capture in use are gill-nets, pound-nets, seines and hook-and-line to a great extent. The principal commercial fishes caught are whitefish, trout, pickerel, pike, sturgeon and fresh-water herring—the latter in the lakes of Ontario only.

Value of the Fisheries.

The total marketed value of all kinds of fish, fish products, and marine animals, taken by Canadian fishermen from the sea and inland lakes and rivers, during the fiscal year ended March 31, 1916, amounted to $35,860,708, which gives an increase of $4,596,077 over the total for the preceding year.

The greater part of the large increase is attributable to British Columbia, which alone gives an increase of $3,023,234 over last year.

The Rivers inlet, Skeena river and Naas river districts, in the northern part of the province, contributed over $2,000,000 of the increase, due to an increased pack of salmon, and to higher prices for all species of these fish.

While the value of halibut landed in British Columbia is greater, the quantity is 19,000 hundredweights less than that of last year, which, in turn, was 9,000 hundredweights less than the quantity landed in the year 1913-14. In this connection the chief inspector for the province remarks in the course of his report that: "There is no question but that this most valuable fishery is gradually declining year by year, and unless an international close season can be arranged, of sufficient length to be of benefit to this fishery, its commercial life as a part of the fishing industry must necessarily be short."

A very substantial increase, amounting to $1,436,660 in the value of the Nova Scotia fisheries, is recorded. All three districts of the province have contributed to

the increase, but the bulk of it has to be credited to the western part of the province, and is largely due to an increased catch by the Lunenburg bank fleet, and an increased catch of lobsters at higher prices.

New Brunswick, which gave an increase of over $600,000 in the previous year, shows a decrease of $202,938 in the year under review. The north shore of the province is alone responsible for the decrease where a lack of salt for curing caused a drop of $94,000 in the value of the herring catch, while mild weather during the winter caused a decrease of over $120,000 in the value of the smelt catch.

The counties of St. John and Charlotte, on the other hand, show an increase of $62,548 over the previous year, notwithstanding the fact that the previous year was one of the very best in the history of the Bay of Fundy fisheries, and it is a satisfactory feature of the increase that all branches of the industry shared in it.

Prince Edward Island records a decrease of over $300,000, which was caused by a poor smelt fishery, due to the mildness of the winter weather, and to the late opening of the lobster fishery, on the north side of the island, owing to the presence of ice on the shore.

The value of the Quebec fisheries has increased by $152,421, due chiefly to an increased catch of codfish and high prices, especially on the coast of Gaspe and in Chaleur bay. The closing of several sawmills, the increased use of motor-boats and better facilities for selling their fish caused a greater number of young men to turn their attention to fishing in the Gaspe district, with the result that all did well.

Manitoba shows a decrease of $106,497, due to the large number of fishermen who enlisted for overseas service, and the severity of the weather during the winter fishing season.

The value of the fisheries in the Yukon territory shows a slight decrease.

The fisheries of Ontario, the figures for which are supplied to this department, by the provincial game and fisheries department, show an increase of over half a million dollars. Trout, whitefish, herring and pickerel, each gave substantial increases, while both the catch and value of pike were less.

To the total value of the fisheries of Canada the sea fisheries contributed $31,241,502, and the inland fisheries $4,619,206.

The following table shows the value produced from the fisheries of each province in the respective order of rank, with the increase or decrease as compared with the year 1914-15.

Province.	Value Produced.	Increase.	Decrease.
	$	$	$
British Columbia	14,538,320	3,023,234	
Nova Scotia	9,166,851	1,436,660	
New Brunswick	4,737,145		202,938
Ontario	3,341,182	585,891	
Quebec	2,076,851	152,421	
Prince Edward Island	933,682		327,984
Manitoba	742,925		106,497
Saskatchewan	165,888	33,871	
Alberta	94,134	7,414	
Yukon	63,730		5,995
Totals	35,860,708	5,239,491	643,414
Net Increase		4,596,077	

The following table shows the quantity of the chief kinds landed in the whole of Canada during 1915-16, and during the four preceding years :—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	cwt.	cwt.	cwt.	cwt.	cwt.
Salmon	1,410,769	1,409,828	1,551,411	1,253,997	1,136,732
*Lobsters	445,277	408,816	514,646	555,138	589,141
Cod	2,152,756	1,820,025	1,664,599	1,729,070	2,097,260
Haddock	582,522	566,002	405,633	503,822	530,221
Hake and Cusk	379,959	262,897	353,598	349,395	275,755
Pollock	138,801	159,788	150,094	143,324	250,881
Halibut	226,151	239,920	256,096	282,658	245,609
Herring	1,894,774	2,118,291	2,484,219	2,484,673	2,251,278
Mackerel	180,990	143,712	215,442	107,964	90,141
Sardines (Brl)	336,794	298.885	141,384	281,548	404,383
Alewives	97,032	90,935	61,768	117,614	75,567
Smelts	67,607	93,771	88,728	102,560	81,748
Whitefish	153,529	159,894	137,887	140,404	131,515
Trout	115,999	67,896	73,164	73,664	80,638
Pickerel	55,722	97,555	61,603	64,839	79,610
Pike	69,229	97,724	64,925	62,492	80,328
Sturgeon	4,363	4,871	4,811	10,035	9,145
Oysters (Brl.)	21,386	26,545	29,828	23,377	31,746
Clams Quahaugs and Scallops (Brl.)	73,713	87,972	121,335	105,303	103,3-

* Previous to the year 1914-15, 250 lbs. of fresh lobsters were allowed to a case. Since then 200 lbs. fresh lobsters to a case.

The following table shows the relative value of the chief commercial fishes returning $100,000 and upwards, in their order of rank, for the year under review, with the amount of increase or decrease, when compared with the values for the year 1914-15.

Kinds of Fish.	Value.	Increase.	Decrease.
	$	$	$
Salmon	11,262,381	2,701,995	
Lobsters	4,506,155	166,226	
Cod	4,489,496	603,362	
Herring	2,906,887	171,630	
Halibut	2,261,776	468,493	
Haddock	1,232,022		12,818
Sardines	1,229,096		120,519
Whitefish	1,048,641	72,956	
Mackerel	990,329	163,483	
Pickerel (including blue pickerel)	901,183	243,400	
Trout	870,209	246,705	
Smelts	632,733		204,949
Hake and Cusk	520,051	206,130	
Pike	347,355		122,564
Clams, Quahaugs and Scallops	240,611		42,265
Pollock	193,788		20,407
Tullibee	165,569	9,040	
Oysters	147,628		30,351
Alewives	120,126	13,220	
Swordfish	106,090	81,310	
Eels	104,237	28,359	

In the table which follows, the total results of the sea and inland fisheries are given separately. In the first two columns are shown the catch of all kinds of sea fish, and its value as realized at the vessel's or boat's side; while in the third and fourth columns are shown the various modes in which the catch was marketed, and the market value of each kind of fish. In the fifth and sixth columns are shown the quantity and value of all kinds of fresh-water fish caught and marketed. Such fish being practically all marketed by the fishermen in its fresh state, no distinction is made between the value of the catch as landed, and its marketed value. In the outer columns are shown the total marketed quantities of the various kinds of both sea and fresh-water fish and the market values of the same.

RECAPITULATION

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc, state, for the Whole of Canada, during the year 1915-16.

Kinds of Fish.	Sea Fisheries.				Inland Fisheries.		Both Fisheries.		Total Marketed. Value.
	Caught and Landed.		Marketed.		Caught and Marketed		Total Marketed.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
		$		$		$		$	$
Salmon ..... Cwt.	1,408,423	6,185,398							
" used fresh ..... "			386,221	2,912,221	2,346	27,679	388,567	2,939,900	
" canned ..... cases			1,133,762	7,936,715			1,133,762	7,936,715	
" dry-salted ..... Cwt.			31,425	143,168			31,425	143,168	
" mild-cured ..... "			10,309	150,327			10,309	150,327	
" smoked ..... "			4,431	66,710			4,431	66,710	
" pickled ..... "			3,101	25,561			3,101	25,561	
									11,262,381
Lobsters ..... "	445,277	2,943,524							
" canned ..... cases			162,966	2,610,631			162,966	2,610,631	
" shipped in shell ..... Cwt.			119,599	1,895,524			119,599	1,895,524	
									4,506,155
Cod ..... "	2,152,756	3,704,888							
" used fresh ..... "			126,814	530,736			126,814	530,736	
" green-salted ..... "			155,527	496,036			155,527	496,036	
" smoked ..... "			30	375			30	375	
" smoked fillets ..... "			214	2,140			214	2,140	
" dried ..... "			571,363	3,460,209			571,363	3,460,209	
									4,489,496
Haddock ..... "	582,522	776,254							
" used fresh ..... "			153,755	326,367			153,755	326,367	
" green-salted ..... "			20,285	60,855			20,285	60,855	
" smoked ..... "			49,108	351,736			49,108	351,736	
" canned ..... cases			6,770	27,080			6,770	27,080	
" dried ..... Cwt.			89,563	434,824			89,563	434,824	
smoked fillets ..... "			3,895	31,160			3,895	31,160	
									1,232,022

Hake and Cusk	"	379,959	356,008								
" used fresh	"			6,607	7,482			6,607	7,482		
" green-salted	"			156	468			156	468		
" smoked	"			666	3,330			666	3,330		
" smoked fillets	"			443	3,244			443	3,244		
" dried	"			123,456	505,527			123,456	505,527		
											520,051
Pollock	"	138,801	134,786								
" used fresh	"			13,916	14,787			13,916	14,787		
" green-salted	"			265	795			265	795		
" dried	"			41,444	178,206			41,444	178,206		
											193,788
Herring	"	1,777,404	1,475,304								
" used fresh	"			180,730	503,897	105,852	523,300	286,582	1,027,197		
" canned	cases			21,501	113,240			21,501	113,240		
" dry-salted	Cwt.			183,704	312,322			183,704	312,322		
" smoked	"			123,465	381,152	758	7,580	124,223	388,732		
" pickled	brl.			108,731	619,642	3,334	33,340	112,065	652,982		
" used as bait	"			197,054	337,540			197,054	337,540		
" used as fertilizer	"			151,149	74,874			151,149	74,874		
											2,906,887
Mackerel	Cwt.	180,990	781,682								
" used fresh	"			82,367	615,950			82,367	615,950		
" salted	brl.			32,729	373,331			32,729	373,331		
" canned	cases			131	1,048			131	1,048		
											990,329
Shad	Cwt.	7,734	48,791								
" used fresh	"			7,308	55,164	1,571	9,125	8,879	64,289		
" salted	brl.			138	2,325	35	525	173	2,850		
											67,139
Alewives	Cwt.	94,190	87,560								
" used fresh	"			35,433	45,754	2,842	5,684	28,275	51,438		
" salted	brl.			19,585	68,688			19,585	68,688		
											120,126
Sardines	"	336,794	675,304								
" canned	cases			120,360	601,800			120,360	601,800		
" sold fresh or salted	brl.			312,722	627,296			312,722	627,296		
											1,229,096
Halibut	Cwt.	226,151	1,195,552								
" used fresh	"			226,151	2,261,776			226,151			2,261,776
Soles	"	3,773	14,449	3,773	27,848			3,773			27,848
Flounders	"	6,276	12,975	6,276	22,886			6,276			22,886
Skate	"	1,738	1,814	1,738	5,537			1,738			5,537
Smelts	"	67,247	390,446	67,247	629,853	360	2,880	67,607			632,733
Oulachons	"	13,729	68,101	13,729	76,982			13,729			76,982
Whiting	"	143	407	143	1,144			143			1,144
Tom-Cod	"	18,537	27,670	18,537	37,007			18,537			37,007
Octopus	"	111	730	111	1,665			111			1,665
Swordfish	"	18,527	81,550	18,527	106,090			18,527			106,090
Albacore	"	13,497	32,797	13,497	45,879			13,497			45,879

RECAPITULATION—*Concluded.*

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products marketed in a fresh, dried, pickled, canned, etc., state, for the Whole of Canada, during the year 1915-16—*Concluded.*

Kinds of Fish.	Sea Fisheries.				Inland Fisheries.		Both Fisheries.		Total Marketed Value.
	Caught and Landed.		Marketed.		Caught and Marketed		Total Marketed.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
		$		$		$		$	$
Oysters ..... Brl.	21,386	121,243	21,386	147,628	.....	.....	21,386	.....	147,628
Clams and Quahaugs ..... "	66,878	107,413	.....	.....	.....	.....	.....	.....	
" " used fresh ..... "	.....	.....	50,265	133,303	.....	.....	50,265	133,303	
" " canned ..... Cases.	.....	.....	16,613	89,616	.....	.....	16,613	89,616	
									222,919
Dulse, Crabs, Cockles, etc ..... Cwt.	7,636	19,795	4,996	29,488	.....	.....	4,996	.....	29,488
Squid ..... Brl.	5,179	16,342	5,179	22,429	.....	.....	5,179	.....	22,429
Capelin ..... "	2,187	944	2,187	1,827	.....	.....	2,187	.....	1,827
Scallops ..... "	6,835	15,420	.....	.....	.....	.....	.....	.....	
" shelled ..... Gal.	.....	.....	13,670	17,962	.....	.....	13,670	.....	17,962
Trout ..... Cwt.	4,638	40,020	4,638	58,745	111,361	811,464	115,999	.....	870,209
Sturgeon ..... "	852	8,133	852	16,740	3,511	45,947	4,363	.....	62,687
Bass ..... "	2,777	26,675	2,777	32,886	256	2,756	3,033	.....	35,642
Eels ..... "	3,954	19 371	3,954	26,491	10,560	77,746	14,514	.....	104,237
Whitefish ..... "	.....	.....	.....	.....	153,529	1,048,641	153,529	.....	1,048,641
Blue Pickerel ..... "	.....	.....	.....	.....	48,823	488,230	48,823	.....	488,230
Pickerel ..... "	.....	.....	.....	.....	55,722	412,953	55,722	.....	412,953
Perch ..... "	487	2,306	487	3,896	18,731	94,223	19,218	.....	98,119
Pike ..... "	.....	.....	.....	.....	69,229	347,355	69,229	.....	347,355
Tullibee ..... "	.....	.....	.....	.....	55,787	165,569	55,787	.....	165,569
Maskinongé ..... "	.....	.....	.....	.....	303	3,451	303	.....	3,451
Catfish ..... "	.....	.....	.....	.....	8,061	60,923	8,061	.....	60,923
Goldeyes ..... "	.....	.....	.....	.....	4,055	8,473	4,055	.....	8,473
Carp ..... "	.....	.....	.....	.....	20,181	40,362	20,181	.....	40,362
Mullets ..... "	.....	.....	.....	.....	6,673	6,673	6,673	.....	6,673
Mixed fish ..... "	12,561	26,012	12,461	41,064	113,371	385,235	125,832	.....	426,299
Tongues and Sounds ..... "	.....	.....	1,046	5,802	.....	.....	1,046	.....	5,802

Hake Sounds	"			461	15,475			461		15,475
Caviare	"			1	200	81 3/16	8,130	82 3/16		8,330
Sturgeon bladders	No.					1,604	962	1,604		962
Salmon roe	Cwt.			623	6,230			623		6,230
Hair Seals	No.	11,346	11,392							
" skins	"			11,346	16,112			11,346		16,112
Fur Seals	"	439	13,170							
" skins	"			439	13,170			439		13,170
Whales	"	313	146,532							
Whale oil	Gal.			710,188	144,209			710,188	144,209	
Whalebone and meal	Ton.			229	5,824			229	5,824	
Fertilizer	Cwt.			22,677	49,136			22,677	49,136	
										199,169
Fish oil	Gal.			565,924	200,756			565,924		200,756
Fish skins	Cwt.			1,043	1,408			1,043		1,408
Seal oil	Gal.			57,907	26,451			57,907		26,451
Fish offal	Ton.			2,000	4,000			2,000		4,000
Belugas	No.	750	1,500							
Beluga skins	"			750	3,750			750		3,750
Totals			19,572,258		31,241,502		4,619,206			35,860,708

Number of persons employed, and amount of Capital invested.

The total number of persons engaged in the various branches of the fishing industry, during the year under review, was 102,182, which is the largest number since 1900, when there were 99,269 persons employed. During 1914-15, there were 94,513 persons, engaged in the work of the fisheries, so that the number for the year under review is greater by 7,669 than in the preceding year.

Of the total number, 86,766 were engaged in the sea, and 15,416 in the inland fisheries. There were 9,541 on vessels, tugs and smacks, 65,321 on boats, and 27,320 on shore, in canneries, freezers and smoke-houses, etc., cleaning and preparing the fish for market.

The amount of capital invested in vessels, boats, fishing gear, canneries, etc., was $25,855,575, an increase of $1,122,413 from the year preceding. Canneries and other fixtures on shore, were valued to $11,060,319, while the remainder, amounting to $14,795,256, represents the value of vessels, boats and gear.

In the sea fisheries $23,260,456 was the amount invested, while that invested in the inland fisheries was $2,595,119; both fisheries thus show an increase.

There were 1,984 vessels, tugs, and carrying smacks in use, as against 1,892 in the previous year. Of the 38,536 boats 11,097 were gasoline motor-boats, or 1,795 more than in the preceding year. Five years ago, only 4,588 gasoline boats were in use in the fisheries.

The following table shows the details of the number and value of vessels, boats and gear, etc., and the number of persons employed in the fisheries throughout the whole of Canada:—

RECAPITULATION

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, Traps, etc., used in the Sea and Inland Fisheries in the Whole of Canada, for the Year 1915-16.

	Sea Fisheries.		Inland Fisheries.		Total, Both Fisheries.	
	Number.	Value.	Number.	Value.	Number.	Value.
		$		$		$
Steam Fishing Vessels (tonnage 7,190)..	57	826,693	142	673,100	199	1,499,793
Sailing and Gasoline vessels	1,294	2,812,000			1,294	2,812,000
Boats (sail and row)	23,551	1,052,754	3,888	134,007	27,439	1,186,761
" (gasoline)	10,262	2,864,068	835	295,125	11,097	3,159,193
Carrying smacks	491	282,711			491	282,711
Gill nets, seines, trap and smelt nets, etc.	157,824	2,587,000		957,087		3,544,087
Weirs	794	534,890	184	67,200	978	602,090
Trawls	21,101	225,833			21,101	225,833
Spears			419	1,087	419	1,087
Skates of gear	1,950	28,500			1,950	28,500
Hand lines	67,076	54,368	109,525	35,892	176,601	90,260
Eel traps			170	340	170	340
Crab traps	75	750			75	750
Lobster traps	1,371,774	1,355,851			1,371,774	1,355,851
" canneries	623	631,035			623	631,035
Salmon "	86	3,071,698			86	3,071,698
Clam "	19	28,200			19	28,200
Sardine "	5	349,000			5	349,000
Salmon traps	2	6,000			2	6,000
Freezers and ice houses	796	2,558,090	866	289,978	1,662	2,848,068
Smoke and fish houses	8,812	1,527,162	197	14,740	9,009	1,541,902
Fishing piers and wharves	2,643	2,207,538	230	66,563	2,873	2,274,101
Whaling stations	4	180,855			4	180,855
Oil factories	1	40,000			1	40,000
Fishing huts and cottages, etc			55	60,000	55	60,000
Scows, pile drivers, etc	576	35,460			576	35,460
Totals		23,260,456		2,595,119		25,855,575

PERSONS EMPLOYED.

	Sea Fisheries.	Inland Fisheries.	Total, Both Fisheries
Number of men employed on Vessels	8,001	757	8,758
" " " Boats	52,452	12,869	65,321
" " " carry smacks	783		783
" Persons Employed in Fish houses, Freezers, Canneries, etc	25,530	1,790	27,320
Totals	86,766	15,416	102,182

REVIEW OF THE FISHERIES OF EACH PROVINCE.

NEW BRUNSWICK.

The total marketed value of the fisheries of this province, for the year 1915-16, was $4,737,145. The decrease of $202,938, from the total for the preceding year, is due to the falling-off in the smelt and herring fisheries, caused by weather conditions and lack of salt for curing.

The amount of capital invested in vessels, boats, fishing gear and fixtures throughout the province, was $3,958,714, as compared with $3,765,020 in the preceding year. There were 23,373 persons engaged in the work of the fisheries, of which number 1,697 were employed on vessels and carrying smacks, 15,005 on boats, and 6,671 in canneries, smoke-houses, etc., on shore. In the year preceding the number of persons employed was 22,034.

District No. 1.

This district comprises the counties of Charlotte and St. John. The value of the fisheries in this district reached the highest figure in many years, amounting to $2,111,870. Although the price of sardines, which had been very high in 1914-15, was again normal, a very large increase in the quantity of smoked herring put up, and a catch of hake over double that of last year, have contributed to the increase over last year, when the total marketed value was $2,049,322. However, all kinds of fishing brought good returns, and the season was a highly prosperous one.

The following table shows the quantities of the chief kinds landed during the year under review, and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	cwt	cwt.	cwt.	cwt.	cwt.
Lobsters	9,232	9,337	11,751	12,410	8,539
Herring	169,460	92,726	197,297	189,200	190,660
Sardines (brl)	336,290	298,585	141,384	280,282	403,103
Pollock	38,165	53,875	70,862	47,954	58,210
Hake	123,102	61,370	65,180	97,524	79,412
Salmon	2,156	3,724	3,998	3,295	3,353
Cod	20,978	23,300	18,832	25,253	18,160

There was also an increase in the amount of capital invested, from $2,065,896 to $2,140,247, and in the number of persons employed from 3,493 to 3,965. Of the persons employed, 425 were on vessels and carrying smacks, 2,436 on boats, and 1,104 in fish-houses, etc., on shore.

District No. 2.

The total marketed value of the fisheries of this district, which comprises the counties of Albert, Westmorland, Kent, Northumberland, Gloucester, and Restigouche, amounted to $2,589,153, which constitutes a decrease of $260,667 from the total for the preceding year. Almost half of this decrease may be attributed to the drop in the catch of smelts, which resulted from the lack of ice on the rivers, during the early part

of the winter. By the time the ice had formed, and the fishermen were able to set their nets, these fish had gone out to sea. A considerable fall-off also occurred in the herring fishery, owing to a dearth of salt for curing purposes.

The quantities of the chief kinds landed during the year under review, and the four preceding years, are shown in the following table:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Salmon	15,004	12,497	13,090	10,004	9,144
Lobsters	62,919	59,719	66,426	71,768	83,343
Cod	229,935	229,338	221,603	218,683	180,400
Herring	512,730	546,096	670,829	565,482	552,729
Mackerel	19,748	29,857	16,831	6,010	5,671
Smelts	52,900	65,105	60,059	79,854	64,179
Clams and quahangs (brl.)	13,836	15,130	29,214	22,416	33,674

It will be observed that salmon, lobsters and cod, all show an increase over the landings for 1914-15.

The value of fishing material amounted to $1,712,597, an increase of $122,672, when compared with the preceding year. The number of men on vessels was 1,258, on boats 11,284, and on carrying smacks 14, while on shore 5,567 persons were employed in canneries, etc., making a total of 18,123 engaged in the work of the fisheries, as against 17,253 in the year preceding.

District No. 3 (Inland).

In the counties of Kings, Queens, Sunbury, York, Carleton, Victoria, and Madawaska, which comprise the inland district of New Brunswick, the total marketed value of the fisheries amounted to $36,122, which is $4,819 less than the total for the preceding year. Pickerel were scarce and of small size, while a reduced salmon catch is due to heavy rainstorms in the height of the season.

The following table shows the catches of the chief kinds landed during the year under review, and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Salmon	707	835	897	578	520
Trout	710	651	728	574	579
Pickerel	255	480	528	897	658
Alewives	2,842	4,374	3,810	4,288	3,760
Shad	1,422	967	839	821	709

The shad fishery in this district, where the department operates a shad hatchery, is showing considerable improvement, both as to quantity and size of fish.

The amount of capital invested in fishing boats, gear, and club-houses, amounted to $105,870, as compared with $109,199 in the previous year.

The number of men employed in boats was 1,285.

In Appendix 1 there will be found fuller details of the fisheries of New Brunswick.

PRINCE EDWARD ISLAND.

The total marketed value of the fisheries of this province amounted to $933,682, showing a decrease of $327,984, when compared with the value for 1914-15. This is accounted for by the drop in the catch of smelts and of lobsters. The ice formed too late and was not heavy enough to prevent the smelts from spreading on the flats, where bag-nets could not be used, instead of following the channel as usual. The lobster fishery was impaired by ice remaining late on the northern part of the island, as well as by scarcity of bait.

Cod and hake showed satisfactory increases.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Lobsters	84,894	88,341	92,898	136,992	118,090
Cod	57,208	29,542	59,022	49,876	49,653
Hake	21,282	22,500	25,191	38,751	16,600
Herring	20,360	55,032	85,295	83,391	79,178
Mackerel	5,640	9,215	11,496	5,448	5,005
Oysters Brl.	6,206	7,823	12,951	8,631	8,835
Smelts	4,412	19,326	9,777	10,545	5,688
Clams and quahaugs Brl.	2,027	2,748	18,966	4,985	8,083

The amount of capital invested was $1,024,268, which is less, by $6,196, than in the preceding year, while 5,043 persons were engaged in the various branches of the fishing industry, as against 5,832 in the year preceding. Of the total number, 3,004 were employed on boats, and 89 on vessels and smacks; the remaining 2,550 were in fish-houses, canneries, etc., on shore.

In Appendix 2 will be found fuller details of the fisheries of Prince Edward Island.

NOVA SCOTIA.

During the year under review, the total marketed value of fish and fish products of this province amounted to $9,166,851, as compared with $7,730,191 in 1914-15. This very considerable increase, of nearly one and a half million dollars, is attributable to the increased catch by the Lunenburg bank fleet, as well as the higher prices obtained for lobsters, together with an increase of over 36,000 hundredweights in the quantity taken.

The canned lobster trade recovered, to a gratifying extent, from the serious conditions caused by the war, in the previous season; while a continued run of large lobsters caused an increase of nearly 30,000 hundredweights in the quantity shipped in the shell.

The amount of capital invested in vessels, boats, gear and fixtures on shore, is placed at $7,899,112 for the year 1915-16; this shows an advance of $330,291 since the preceding year.

Twenty-nine thousand and sixty-two persons were engaged in the work of the fisheries in the province, which is 302 less than the total for the year preceding. The number of men employed on vessels and smacks was 5,445; on boats, 17,320; while in fish-houses, freezers, smoke-houses, etc., on shore, there were 6,297 persons employed.

District No. 1.

The total marketed value for this district, which comprises the whole of the island of Cape Breton, amounted to $1,289,826, constituting an increase of $260,176 over last year's total. The catch of haddock was nearly double that of 1914-15; and better prices were paid for nearly all kinds of fish. Herring were unusually plentiful and the catch would probably have been 100 per cent greater had salt been available; as it is the quantity taken was much larger than in the previous year.

The quantities of the chief kinds landed during the year under review and the four preceding years were as follows:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Salmon	3,645	4,169	2,406	1,903	2,690
Lobsters	39,949	32,843	51,426	53,221	49,250
Cod	130,505	159,666	114,043	101,696	146,440
Haddock	183,752	94,510	64,949	70,220	95,708
Hake	7,761	5,224	7,338	6,541	6,384
Pollock	7,757	16,103	5,245	7,141	10,244
Herring	55,231	47,931	54,947	47,886	33,621
Mackerel	26,792	25,437	36,772	19,882	8,883

The amount of capital invested in fishing material and fixtures on shore increased by $56,632; last year's figure being $1,213,686, while that for the year under review was $1,270,318.

There were 567 men engaged in the work of the fisheries on vessels, 5,001 on boats, 134 on carrying smacks, and 1,772 persons in fish and smoke-houses on shore; the whole making a grand total of 7,474, or 122 more than in the year preceding.

District No. 2.

This district comprises the counties of Cumberland, Colchester, Pictou, Antigonish, Guysboro, Halifax, and Hants. The total marketed value of the fish and fish products of the district amounted, during the year under review, to $2,173,057, and shows an advance of $227,666 from the total for the preceding year. Increased catches of nearly all kinds of fish contributed to this satisfactory increase of value.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Lobsters	81,737	75,073	93,258	101,075	97,682
Mackerel	37,596	34,557	59,225	19,441	48,970
Cod	149,202	139,208	147,694	137,314	181,439
Halibut	15,968	13,199	21,962	13,992	17,794
Haddock	124,741	135,368	101,375	162,172	192,774
Herring	148,059	136,659	111,165	110,156	161,698

Salmon, shad, and alewives were taken in larger quantities than for many years previous. The amount of capital invested in vessels, boats, gear, and fixtures on shore, is placed at $1,998,876 for the year 1915-16, which sum is somewhat greater than that shown in the preceding year.

Of 7,393 persons who were engaged in the work of the fisheries during the year, the number on boats was 4,664, and on vessels and smacks there were 793, while in fish and smoke-houses on shore, 1,936 persons were employed. During the preceding year the total number of persons engaged in the work of the fisheries was 7,700.

District No. 3.

The total marketed value of the fisheries of this district, which comprises the counties of Lunenburg, Queens, Shelburne, Yarmouth, Digby, Annapolis, and Kings, amounted to $5,703,968 for the year under review; this constitutes an increase of $948,908, or nearly a million dollars.

The lobster fishery alone contributed $494,410 of the increase. Not only was the catch much larger than in 1914-15 but prices were extremely high. During January and February, $70 per crate was not an unusual price for lobsters in the shell.

The remainder of the increase is derived chiefly from the cod, hake, and mackerel fisheries. The Lunenburg fleet enjoyed a very successful season, while increased catches in nearly all the shore fisheries are recorded.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Lobsters	142,958	120,693	157,577	129,222	175,316
Cod	796,577	624,146	705,133	689,095	1,021,493
Haddock	245,553	314,233	221,062	239,886	217,876
Hake and Cusk	182,623	147,010	203,838	167,998	135,218
Herring	264,409	228,285	220,361	218,105	180,033
Mackerel	49,128	23,544	66,610	45,263	8,899

The amount of capital invested in vessels, boats, gear, and fixtures on shore in this district in the year now being reviewed was $4,629,918, which makes an increase of $239,412 since the preceding year.

There were 3,806 men engaged in the work of the fisheries on vessels, 7,655 on boats, 145 on carrying smacks, and 2,589 persons employed in fish and smoke-houses, etc., on shore, making a grand total of 14,195. This total is less than that for the preceding year by 117. There were again fewer men on vessels, while the number of men on boats has again increased, owing to the increasing success of the gasoline boats in the prosecution of the shore fisheries.

Gasoline boats are supplanting sail-boats in this district, as there are now more of the former in use than there are of the latter. There are 2,811 motor-boats, but only 2,489 sail-boats.

In Appendix 3 will be found fuller details of the fisheries of Nova Scotia.

QUEBEC.

The total marketed value of the fisheries of this province for the year under review, amounted to $2,076,851, as compared with $1,924,430 for the preceding year. Notwithstanding the drop in the catch of herring, and the fact that the general price of canned lobsters was much lower than in the previous year, there is an increase of $152,421. The cod fishery was very successful, and these fish were not only taken in large quantities, but were of excellent quality, and brought good prices.

The total amount of capital invested in vessels, boats, gear and fixtures on shore, in the province, amounted to $1,464,373, an advance of $72,334 from the amount for the year previous.

There were 373 men engaged in the work of the fisheries in vessels, 8,409 in boats, 69 in carrying smacks and 4,946 persons employed in the fish and smoke-houses, etc., on shore, making a grand total of 13,797, and an increase of 2,785 over the total for the preceding year. Better facilities for disposing of fish, and the closing of several sawmills, as well as the increased use of motor-boats, are among the reasons which induced so many young men to take up fishing in this province.

Gulf Division (Sea Fisheries.)

The total marketed value of the fisheries of this division, which comprises the counties of Bonaventure, Gaspé, (including the Magdalen islands) Rimouski and Saguenay, amounted to $1,901,626, an increase of $109,454 over the total for the year before.

There were 84 whales landed during the year. Although this is almost as many as last year, the quantity of oil obtained was much less.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	cwt.	cwt.	cwt.	cwt.	cwt.
Salmon	11,726	11,310	12,676	8,946	8,278
Lobsters	23,588	22,810	44,310	50,450	56,927
Cod	732,481	567,664	365,052	478,573	474,610
Herrings	139,703	355,849	363,649	358,709	393,982
Mackerel	42,086	21,102	23,598	11,786	12,713
Smelts	2,571	1,245	12,146	4,019	3,540

The amount of capital invested was $1,342,317, and the number of persons engaged in the work of the fisheries was 12,154.

Inland Fisheries.

The inland fisheries of Quebec are now administered by the provincial Government, and it is to the provincial department of Colonization, Mines and Fisheries that this department is indebted for the figures contained in this report concerning the inland fisheries of the province.

The total marketed value for the year which is being reviewed was $175,225, which exceeds the total for the preceding year by $42,967. The amount of capital invested was $122,056, and the total number of persons employed was 1,644.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	cwt.	cwt.	cwt.	cwt.	cwt.
Pickerel	927	1,289	1,229	1,423	1,175
Trout	85	356	967	1,240	1,000
Eels	7,311	4,871	2,496	3,167	4,428
Sturgeon	757	1,075	977	1,742	2,095
Pike	1,960	871	935	855	914
Perch	3,173	1,954	1,823	1,722	1,726

In Appendix 4 will be found fuller details of the fisheries of the province.

ONTARIO.

The fisheries of this province are also administered by the provincial Government and this department is, therefore, indebted to the provincial deputy minister of game and fisheries for the figures contained in this report.

The total value of the fisheries for the year under review was $3,341,182, which sum is $585,891 greater than for the year before.

An increase of over 80 per cent in the catch of trout is recorded, as well as increased catches of whitefish, pickerel, and several other varieties.

The following table shows the quantities of the chief kinds landed during the year 1915-16 and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	cwt.	cwt.	cwt.	cwt.	cwt.
Trout	106,503	57,609	62,204	63,707	65,120
Whitefish	67,100	57,964	52,263	58,897	44,540
Herring	115,715	91,474	130,718	170,677	131,020
*Pickerel	75,541	39,173	26,564	26,656	20,225
Pike	25,844	44,258	34,547	24,732	20,985
Perch	14,904	19,536	12,427	13,931	9,572

* Including blue pickerel.

The amount of capital invested in fishing boats, gear and fixtures on shore in the year under review amounted to $1,860,732. This is an increase of $108,393 over the total for the year before. During the year that is being reviewed there were 4,114 men engaged in the work of the fisheries throughout the province. This number is 38 greater than than for the year preceding.

In Appendix 5 will be found fuller details of the fisheries of the province.

MANITOBA.

The total value of the fisheries of this province, for the year 1915-16, amounted to $742,925. This is $106,497 less than the total for 1914-15. The severity of the winter, which was cold, with very deep snow, made both fishing and transportation of the fish to the railroads difficult; while the large number of fishermen who enlisted for overseas service during the year brought down the number of persons engaged in the industry, from 1,864 in the previous year, to 1,469, or 415 less than in the year under review.

The following table shows the quantities of the chief kinds taken during the year under review, and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Whitefish	44,360	47,649	38,243	48,439	51,844
Pickerel	23,134	53,868	31,024	33,044	54,274
Pike	30,228	37,043	18,756	29,770	32,890
Tullibee	47,562	39,987	13,844	8,470	7,129

The amount of capital invested in the industry in this province, during the year that is being reviewed, was $399,119. This is an increase of $80,836 over the total in the year before.

In Appendix 6 will be found fuller details of the fisheries of this province.

SASKATCHEWAN.

The total value of the fisheries of this province, for the year 1915-16, amounted to $165,888. This total exceeds that for the preceding year by $33,871.

As in Manitoba, the severe weather of the winter, and the low water in lakes and rivers during the summer, resulted in smaller catches of the various kinds of fish than in the year preceding. But the market was good during the winter season, and the buyers were compelled to pay higher prices to secure enough fish to fill their contracts: the fishermen were, therefore, better off than in the previous year.

The following table shows the quantities of the chief kinds landed during the year and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Whitefish	23,936	35,443	30,993	23,120	30,856
Pike	7,535	10,913	7,936	5,197	5,975
Pickerel	3,140	1,951	1,719	2,193	2,656
Mixed Fish	4,824	7,752	4,984	2,915	3,195

The amount of capital invested in the industry in this province, in 1915-16, was $50,089. This is an increase of $5,782 over that in the preceding year. There were 927 men engaged, as against 813 in the year before.

In Appendix 7 will be found fuller details of the fisheries of this province.

ALBERTA.

The total value of the fisheries of this province amounted to $94,134 for 1915-16, which is an increase of $7,414 over the total for the preceding year, which in turn gave an increase of $5,401 over the total for the year 1913-14.

There was a falling off in the quantities of all kinds of fish taken except pickerel, the catch of which was double that of the year before, but the fishermen obtained good prices throughout the winter months, when the demand, which had been steadily increasing since July, greatly exceeded the supply; especially after the curtailing of fishing operations by the extreme cold.

There has been a great improvement in the method of handling Alberta fish during the past year. They are now being well put up in boxes, and reach the market in first-class condition, which will, no doubt, result in a greater demand.

The amount of capital invested in the industry, in 1915-16, was $44,726, which makes an increase of $24,492 over the total in the preceding year. There were 5,727 men engaged in the fisheries in the province during the year under review.

In Appendix 7 fuller details of the fisheries of the province will be found.

YUKON TERRITORY.

The total value of the fisheries in the Yukon Territory, in 1915-16, amounted to $63,730. This is less than the total in the preceding year, by $5,995.

The run of salmon in the Yukon River was very light. It is to be deplored that many fish wheels are in operation on the lower Yukon, all the way to the Canadian boundary line.

The decrease in the catch of whitefish is not due to any depletion of the lakes, but to the enlistment for overseas service of many experienced lake fishermen.

Freezers were erected during the year at Albert lake, which lake was fished for the first time by white fishermen.

The amount of capital invested in boats and fishing gear, in the year being reviewed, was $12,527, against $11,915 in the year before. There were 250 men engaged in fishing during 1915-16, as against 243 in the preceding year.

In Appendix 8 will be found fuller details of the fisheries of this territory.

BRITISH COLUMBIA.

The total marketed value of the fisheries of this province, for the year 1915-16, exclusive of home consumption and landings by United States fishing vessels, for shipment through to points in the United States, amounted to $14,538,320, which constitutes an increase of $3,023,234 over 1914-15.

Almost all of this increase is derived from the salmon industry, the returns from which were $2,714,213 greater than in the preceding year.

The value of canned salmon exceeded that of the previous year by $2,259,517, though the number of cases canned was about the same, on account of the fact that better prices were obtained for canned salmon of all varieties. The failure of the salmon trap-nets in Puget Sound also enabled our fishermen to sell a large quantity of fresh salmon to American packers at a very remunerative price.

The halibut fishery is steadily declining from year to year, although the better prices received in the year being reviewed make the total value greater than in the year preceding. This is largely due to the privilege granted to American fishermen in March, 1915, of shipping their fish in bond over Canadian Railways, from ports in British Columbia, which has had the effect of attracting more buyers to the coast and thus increasing competition and providing the fishermen with a ready market for the product of their labour.

This concession has also contributed in a marked degree to the development of other branches of trade in Canadian ports, especially through provisions and supplies taken on by American vessels.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Salmon	1,369,394	1,369,740	1,509,354	1,221,057	1,103,666
Cod	35,870	47,161	29,220	28,580	25,065
Herring	467,452	563,406	649,062	729,567	545,442
Halibut	194,896	214,444	223,465	253,283	196,486

The amount of capital invested in vessels, boats, gear and fixtures on shore amounted to $9,141,915 in the year under review. This is an advance of $312,175. There were 17,820 persons employed in connection with the fisheries during the year that is being reviewed. In the preceding year there were 18,328 thus employed. The decrease of 508 is principally in the number of those employed in canneries, etc., on shore.

District No. 1.

The total marketed value of the fisheries in this district which comprises the southern portion of the province mainland, amounted to $4,509,642 in 1915-16, as against $3,984,091 in the preceding year. This is an increase of $525,551, without taking into account the quantities landed by American fishermen and those used for home consumption.

The demand for cod in this district is increasing yearly. The black cod which were formerly taken off the halibut hooks and thrown away, are now sold fresh frozen, hard-salted, pickled, kippered, and smoked.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Salmon	428,384	439,283	797,524	410,000	445,355
Herring	29,126	34,540	29,502	46,800	19,822
Halibut	75,313	78,565	93,677	211,274	158,541
Cod	10,702	13,772	12,690	14,750	14,155
Sturgeon	811	1,149	1,090	5,051	5,168
Smelts	2,303	1,757	1,835	1,864	2,530

The amount of capital invested in vessels boats gear and fixtures on shore amounted to $2,783,654 in the year being reviewed, as against $2,747,934 in the preceding year. There were 7,659 persons employed in the industry in 1915-16, as against 7,692 in the year before.

District No. 2.

The total marketed value of the fisheries of this district, which comprises the northern part of the province, including Queen Charlotte islands amounted to $6,390,372 in the year under review, which gives an increase of $2,110,821 over the total in the preceding year.

Salmon contributed to the bulk of this increase, its value being $1,898,885 greater than that in the preceding year. The value of halibut increased by $367,790.

The city of Prince Rupert has reaped very great benefits from concessions granted to United States fishing vessels on account of its excellent railroad facilities, and its comparative proximity to the extensive halibut banks of the Northern Pacific.

The following table shows the quantities of the chief kinds landed in the year that is being reviewed, and in the four preceding years:—

Kinds of Fish.	1915-16.	1914-15.	1913-14.	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Salmon	615,902	564,929	414,380	589,647	491,989
Halibut	96,253	118,948	107,488	29,079	27,945
Cod	2,328	16,904	1,205	1,600	
Oulachans	10,950	12,700	13,950	13,800	15,000
Herring	29,190	68,060	62,240	166,787	26,410
Whales, (No.)	92	253	219	526	309

The amount of capital invested in vessels, boats, gear and fixtures on shore in this district was $4,436,854 in 1915-16, as against $4,331,421 in the preceding year.

There were 7,186 persons employed in connection with the fisheries in the year under review, as against 7,770 in the year before. The falling off is chiefly in the number of those employed on shore.

District No. 3.

The total marketed value of the fisheries of this district, which comprises Vancouver island and a portion of the mainland adjacent to the northern end of the island, amounted to $3,638,306. This is an increase of $386,862 from the total of the preceding year. As in district No. 1, salmon shows a smaller catch but a greater value while the catch of cod on the other hand was the largest recorded, with prices also in advance of the previous season. The herring catch was below that of the previous year, but prices were exceptionally good. Over 5,000 barrels were put up in the Scotch method, and over 11,000 cases of canned herring were put up. The canning of herring is an entirely new venture in British Columbia.

The Indians succeeded in capturing 400 fur seals, as compared with 257 in 1914-15.

The following table shows the quantities of the chief kinds landed during the year under review and the four preceding years:—

Kinds of Fish.	1915-26.	1914-15.	1913-14,	1912-13.	1911-12.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Salmon	325,108	365,528	297,450	221,410	166,322
Cod	22,840	22,485	15,325	12,230	10,900
Herring	409,136	460,806	557,320	515,980	499,210
Halibut	23,330	16,931	22,300	12,930	10,000
Clams and quahaugs (brls.)	5,288	9,322	10,000	8,865	4,030

The amount of capital invested in vessels, boats, gear, and fixtures on shore is placed at $1,921,407 in the year that is being reviewed, while for the preceding year it was $1,750,385. There were 2,975 persons employed in the fisheries in 1915-16, as against 2,866 in the preceding year, or 109 more.

In Appendix 9 will be found fuller details of the fisheries of this province, also a report by Engineer McHugh, and a report on exploration work by Captain Crichton.

Tables, recapitulating by provinces the quantity and value of fish marketed and the number and value of vessels, boats, etc., follow; also a table showing the annual value of fish produced by each province from 1870 to 1915-16, a table showing the number and value of vesels and boats, etc., used annually in the fisheries since 1880, and a table showing the number of persons annually employed in the industry since 1895.

RECAPITULATION.

By Provinces of the Quantities and Values of all Fish and Fish Products marketed during the Year 1915-16.

Number.	Kinds of Fish.	Nova Scotia.		New Brunswick.		Prince Edward Island.		Quebec.		Ontario.		Number.
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
			$		$		$		$		$	
1	Salmon, used fresh cwt.	9,868	156,025	17,867	268,005	100	1,000	8,463	77,571			1
2	" canned cases.	44	352					337	2,696			2
3	" dry-salted cwt.	56	1,048									3
4	" mild-cured "											4
5	" smoked "	49	980									5
6	" pickled "							2,031	12,186			6
7	Lobsters, canned cases.	78,632	1,232,603	30,229	604,580	42,353	625,741	11,752	147,707			7
8	" shipped in shell cwt.	107,366	1,743,072	11,692	150,780	187	1,349	84	323			8
9	Cod, used fresh "	68,563	158,092	13,884	27,768	5,629	13,988	3,959	5,938			9
10	" green-salted "	73,184	255,498	16,938	51,330	3,042	12,692	62,260	175,229			10
11	" smoked "											11
12	" smoked fillets "	214	2,140									12
13	" dried "	286,895	1,923,811	67,699	345,296	15,160	90,960	201,334	1,096,705			13
14	Haddock, used fresh "	145,039	305,047	8,021	20,035	295	885	400	400			14
15	" green-salted "	20,285	60,855									15
16	" smoked "	44,768	317,016	4,340	34,720							16
17	" canned cases.	6,770	27,080									17
18	" smoked fillets cwt.	3,895	31,160									18
19	" dried "	85,292	417,484	2,501	10,335	290	1,160	1,480	5,845			19
20	Hake and Cusk, used fresh "	3,857	4,432	2,687	2,924	63	126					20
21	" green-salted "	156	468									21
22	" smoked "	666	3,330									22
23	" smoked fillets "	443	3,244									23
24	" dried "	70,669	312,927	45,515	156,653	7,072	35,247	200	700			24
25	Pollock, used fresh "	2,781	3,652	11,135	11,135							25
26	" green-salted "	265	795									26
27	" dried "	32,435	142,170	9,009	36,036							27
28	Herring, used fresh "	80,113	89,063	21,113	39,901	2,969	3,203	4,248	4,335	104,197	520,985	28
29	" canned cases.	5,733	22,932	4,300	21,500							29
30	" dry-salted cwt.											30
31	" smoked "	11,468	47,424	104,997	279,844			1,209	1,218	758	7,580	31
32	" pickled brl.	69,059	342,045	21,058	84,742	438	2,069	9,286	27,534	3,334	33,340	32
33	" used as bait "	76,559	148,912	49,680	79,550	8,035	16,070	45,600	50,058			33
34	" " fertilizer "	350	175	142,982	72,291			7,817	2,408			34
35	Mackerel, used fresh cwt.	60,218	399,115	19,514	195,140	2,354	20,590	281	1,105			35

RECAPITULATION—*Continued.*

By Provinces of the Quantities and Values of all Fish and Fish Products Marketed during the Year 1915-16—*Continued.*

Number.	Kinds of Fish.		Nova Scotia.		New Brunswick.		Prince Edward Island.		Quebec		Ontario.		Number.
			Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity	Value	Quantity	Value.	
				$		$		$		$		$	
36	Mackerel salted	brl.	17,620	232,168	78	936	1,096	15,021	13,935	125,206			36
37	" canned	cases.	131	1,048									37
38	Shad, used fresh	cwt.	1,545	13,775	7,037	47,330			254	2,540			38
39	" salted	brl.	63	1,200	110	1,650							39
40	Alewives, used fresh	cwt.	12,253	20,494	26,022	30,944							40
41	" salted	brl.	3,233	14,132	16,222	54,166	130	390					41
42	Sardines, canned	cases			120,360	601,800							42
43	" sold fresh or salted	brl.	436	2,180	312,218	624,436			68	680			43
44	Halibut, used fresh	cwt.	30,548	283,676	347	3,470			390	2,340			44
45	Soles	"	595	1,865									45
46	Flounders	"	2,110	9,833	2,767	5,534							46
47	Skate	"	1,209	1,305									47
48	Smelts	"	4,770	47,987	52,961	529,610	4,412	24,467	2,931	9,945			48
49	Oulachons	"											49
50	Whiting	"											50
51	Tom cod	"	247	417	18,082	36,164	30	60	178	366			51
52	Octopus	"											52
53	Swordfish	"	18,527	106,090									53
54	Albacore	"	13,497	45,879									54
55	Oysters	brl.	1,592	10,420	12,498	74,988	6,206	42,055					55
56	Clams and Quahangs, used fresh	"	13,375	25,762	25,308	38,400	1,077	4,695	2,293	4,586			56
57	" canned	cases	551	2,264	12,674	63,370	950	5,700	2	12			57
58	Dulse, Crabs, Cockles, etc	cwt.	1,660	5,102	1,160	5,655							58
59	Squid	brl.	4,032	20,314	148	292			999	1,823			59
60	Capelin	"							2,187	1,827			60
61	Scallops, shelled	gal.	10,170	12,712	3,500	5,250							61
62	Blue Pickerel	cwt.									48,823	488,230	62
63	Trout	"	1,007	12,070	2,947	29,470	111	1,110	529	3,110	106,503	770,090	63
64	Sturgeon	"	11	220	87	870			787	6,749	2,511	37,710	64
65	Bass	"	219	2,190	2,599	31,106			207	2,322			65
66	Eels	"	2,182	12,050	1,710	13,311	150	1,500	7,346	58,620	3,126	18,756	66
67	Whitefish	"			42	630			257	2,930	67,100	623,240	67
68	Pickerel	"			255	2,550			927	8,168	26,718	267,180	68
69	Perch	"			12	48			3,173	16,548	14,904	74,520	69
70	Pike	"							1,960	10,156	25,844	206,752	70

71	Tullibee	"									6,630	39,780	71
72	Maskinongé	"							285	3,001			72
73	Catfish	"									6,675	53,400	73
74	Goldeyes	"											74
75	Carp	"									20,181	40,362	75
76	Mullets	"											76
77	Mixed Fish	"	4,725	5,520	980	980	135	136	8,694	57,091	30,063	150,315	77
78	Tongues and Sounds	"	731	1,666			175½	3,756	139	380			78
79	Hake Sounds, dried	"			461	15,475							79
80	Caviare	"	1	200	1½	150					79⅘	7,980	80
81	Sturgeon bladders	No.									1,604	962	81
82	Salmon roe	cwt.											82
83	Hair Seal Skins	No.	2,857	2,861	23	69			8,466	13,182			83
84	Fur Seal Skins	"											84
85	Beluga Skins	"							750	3,750			85
86	Whalebone and Meal	tons.							10	900			86
87	Fertilizer	cwt.							3,617	12,659			87
88	Whale Oil	gal.							171,000	49,590			88
89	Fish Oil	"	254,312	101,893	86,420	25,926	24,283	9,713	167,344	50,861			89
90	Fish Skins	cwt.	1,043	1,408									90
91	Fish Offal	ton.	2,000	4,000									91
92	Seal Oil	Gals.	22,448	11,204					35,459	15,247			92
	Totals			9,166,851		4,737,145		933,682		2,076,851		3,341,182	

RECAPITULATION.—*Continued.*

By Provinces of the Quantities and Values of all Fish and Fish Products Marketed during the Year 1915-16.—*Continued.*

Number.	Kinds of Fish.	Manitoba.		Saskatchewan.		Alberta.		Yukon		British Columbia.		Number.
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
			$		$		$		$		$	
1	Salmon, used fresh..... cwt.							1,570	15,700	350,699	2,421,599	1
2	" canned..... cases.									1,133,381	7,933,667	2
3	" dry-salted ..... cwt.									31,369	142,120	3
4	" mild-cured..... "									10,309	150,327	4
5	" smoked.. ..... "									4,382	65,730	5
6	" pickled ..... "									1,070	13,375	6
7	Lobsters, canned..... cases.											7
8	" shipped in shell..... cwt.											8
9	Cod, used fresh..... "											9
10	" green-salted..... "									34,779	324,950	10
11	" smoked..... "									103	1,287	11
12	" smoked fillets..... "									30	375	12
13	" dried..... "											13
14	Haddock, used fresh..... "									275	3,437	14
15	" green-salted..... "											15
16	" smoked ..... "											16
17	" canned..... cases.											17
18	" smoked fillets..... cwt.											18
19	" dried..... "											19
20	Hake and Cusk, used fresh..... "											20
21	" green-salted.. "											21
22	" smoked..... "											22
23	" smoked fillets.. "											23
24	" dried..... "											24
25	Pollock, used fresh ..... "											25
26	" green-salted..... "											26
27	" dried..... "											27
28	Herring, used fresh..... "											28
29	" canned ..... cases									73,942	369,710	29
30	" dry-salted..... cwt.									11,468	68,808	30
31	" smoked..... "									183,704	312,322	31
32	" pickled ..... brl.									5,791	52,666	32
33	" used as bait..... "									8,890	163,252	33
34	" " fertilizer... "									17,180	42,950	34
35	Mackerel, used fresh..... cwt.											35

36	" salted	brl.											36
37	" canned	cases.											37
38	Shad, used fresh	cwt.									43	645	38
39	" salted	brl.											39
40	Alewives, used fresh	cwt.											40
41	" salted	brl.											41
42	Sardines, canned	cases.											42
43	" sold fresh or salted	brl.											43
44	Halibut, used fresh	cwt.									194,896	1,972,290	44
45	Soles	"									3,178	25,983	45
46	Flounders	"									1,397	7,515	46
47	Skate	"									529	4,232	47
48	Smelts	"									2,533	20,724	48
49	Oulachons	"									13,729	76,982	49
50	Whiting	"									143	1,144	50
51	Tom-cod	"											51
52	Octopus	"									111	1,665	52
53	Swordfish	"											53
54	Albacore	"											54
55	Oysters	brl.									1,090	20,165	55
56	Clams and Quahaugs, used fresh	"									8,212	59,860	56
57	" canned	cases.									2,436	18,270	57
58	Dulse, Crabs, Cockles, etc	cwt.									2,176	18,781	58
59	Squid	brl.											59
60	Capelin	"											60
61	Scallops, shelled	gal.											61
62	Blue Pickerel	cwt.											62
63	Trout	"	436	1,744	2,218	9,632	1,138	13,878	271	8,130	839	20,975	63
64	Sturgeon	"	153	918							811	16,220	64
65	Bass	"	8	24									65
66	Eels	"											66
67	Whitefish	"	44,360	256,992	23,936	92,420	17,036	52,479	798	19,950			67
68	Pickerel	"	23,134	114,973	3,140	15,351	1,546	4,381	2	50			68
69	Perch	"	573	2,865	17	72	52	170			487	3,896	69
70	Pike	"	30,228	90,099	7,535	29,541	3,660	10,757	2	50			70
71	Tullibee	"	47,562	119,826	1,247	5,029	348	931					71
72	Maskinongé	"							18	450			72
73	Catfish	"	1,386	7,523									73
74	Goldeyes	"	3,911	7,882	44	240	70	351					74
75	Carp	"											75
76	Mullets	"	6,673	6,673									76
77	Mixed Fish	"	66,703	133,406	1,824	13,603	1,804	11,184	971	19,400	6,933	34,665	77
78	Tongues and Sounds	"											78
79	Hake Sounds, dried	"											79
80	Caviare	"											80
81	Sturgeon bladders	No.											81
82	Salmon roe	cwt.									623	6,230	82
83	Hair Seal Skins	No.											83
84	Fur Seal Skins	"									439	13,170	84

RECAPITULATION—*Concluded.*

By Provinces of the Quantities and Values of all Fish and Fish Products Marketed during the Year 1915-16.—*Concluded.*

Number.	Kinds of Fish.	Manitoba.		Saskatchewan.		Alberta.		Yukon.		British Columbia.		Number.
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
			$		$		$		$		$	
85	Beluga Skins ..... No.											85
86	Whalebone and Meal ..... ton.									219	4,924	86
87	Fertilizer ..... cwt.									19,060	36,477	87
88	Whale Oil ..... gal.									539,188	94,619	88
89	Fish Oil ..... "									33,565	12,363	89
90	Fish Skins ..... cwt.											90
91	Fish Offal ..... ton.											91
92	Seal Oil ..... gal.											92
	Totals		742,925		165,888		94,134		63,730		14,538,320	

RECAPITULATION.

By Provinces of the number and value of Fishing Implements, Vessels, Boats, etc., used in the Fishing Industry of Canada during the year 1915-16, and the number of persons employed.

Provinces.	Persons employed.			Vessels, Tugs, and Carrying Smacks.		Boats.			Value of gill-nets, seines, trap and smelt nets, etc.	Value of hand lines, weirs and trawls, etc.	Value of lobster plant.	Approximate value of salmon and other canneries, freezers, fish houses and fixtures.	Total value.
	No. in Vessels, etc.	No. in Boats.	No. in Canneries, Fish-houses, etc	Number.	Value.	Gasoline.	Sail and Row.	Total Value					
					$			$	$	$	$	$	$
Nova Scotia	5,445	17,320	6,297	857	1,907,054	4,678	8,847	1,439,654	755,251	246,548	1,022,252	2,528,353	7,899,112
New Brunswick	1,697	15,005	6,671	493	384,150	1,722	7,909	649,399	618,658	521,621	380,176	1,404,710	3,958,714
Prince Edward Island	89	3,004	2,550	33	18,450	1,271	562	237,575	45,367	10,151	444,773	267,952	1,024,268
Quebec	442	8,409	4,946	90	166,375	548	3,872	396,066	215,465	102,154	139,685	444,628	1,464,373
Ontario	588	3,526	.....	118	522,650	666	1,403	315,556	818,321	6,052	.....	198,153	1,860,732
Manitoba	105	1,060	304	10	141,000	2	361	29,335	79,534	.... .	... .	149,250	399,119
Saskatchewan	... ..	927	. .....	...	....	51	610	20,310	26,319	2,580	.....	880	50,089
Alberta	... .	5,711	16	.....	.....	15	184	7,708	9,680	22,870	....	4,468	44 726
Yukou	... .	224	26	.....	.....	1	115	3,045	3,408	149	....	5,926	12,527
British Columbia	1,175	10,135	6,510	383	1,454,825	2,143	2,578	1,247,306	972,084	42,735	... .	5,424,965	9,141,915
Totals	9,541	65,321	27,320	1,984	4,594,504	11,097	27,439	4,345,954	3,544,087	954,860	1,986,886	10,429,284	.....
Grand total value	....	.....	.....	.....	.....	....	.....	.....	....	.....	.....	.....	25,855,575

COMPARATIVE TABLE showing the total Value of the Fisheries in the respective Provinces of Canada, from 1870 to 1915--16 inclusive, as compiled from the Annual Report of the Department of Marine and Fisheries.

Year.	Nova Scotia.	New Brunswick.	Prince Edward Island.	Quebec.	Ontario.	British Columbia.	Manitoba, Saskatchewan, Alberta & Yukon.	Total for Canada.
	$	$	$	$	$	$	$	$
1870	4,019,425	1,131,433	Not Known.	1,161,551	264,982	Not Known.	Not Known.	6,577,391
1871	5,101,030	1,185,033	"	1,093,612	193,524	"	"	7,573,199
1872	6,016,835	1,965,459	"	1,320,189	267,633	"	"	9,570,116
1873	6,577,085	2,285,662	207,595	1,391,564	293,091	"	"	10,754,997
1874	6,652,302	2,685,794	288,863	1,608,660	446,267	"	"	11,681,886
1875	5,573,851	2,427,654	298,927	1,596,759	453,194	"	"	10,350,385
1876	6,029,050	1,953,389	494,967	2,097,668	437,229	104,697	"	11,117,000
1877	5,527,858	2,133,237	763,036	2,560,147	438,223	583,433	"	12,005,934
1878	6,131,600	2,305,790	840,344	2,664,055	348,122	925,767	"	13,215,678
1879	5,752,937	2,554,722	1,402,301	2,820,395	367,133	631,766	"	13,529,254
1880	6,291,061	2,744,447	1,675,089	2,631,556	444,491	713,335	"	14,499,979
1881	6,214,782	2,930,904	1,955,290	2,751,962	509,903	1,454,321	"	15,817,162
1882	7,131,418	3,192,339	1,855,687	1,976,516	825,457	1,842,675	"	16,824,092
1883	7,689,374	3,185,674	1,272,468	2,138,997	1,027,033	1,644,646	"	16,958,192
1884	8,763,779	3,736,454	1,085,619	1,694,561	1,133,724	1,358,267	"	17,766,404
1885	8,283,922	4,005,431	1,293,430	1,719,460	1,342,692	1,078,038	"	17,722,973
1886	8,415,362	4,180,227	1,141,991	1,741,382	1,435,998	1,577,348	186,980	18,679,288
1887	8,379,782	3,559,507	1,037,426	1,773,567	1,531,850	1,974,887	129,084	18,386,103
1888	7,817,030	2,941,863	876,862	1,860,012	1,839,869	1,902,195	180,677	17,418,508
1889	6,346,722	3,067,039	886,430	1,876,194	1,963,123	3,348,067	167,679	17,655,254
1890	6,636,444	2,699,055	1,011,109	1,615,119	2,009,637	3,481,432	232,104	17,714,900
1891	7,011,300	3,571,050	1,238,733	2,008,678	1,806,389	3,008,755	332,969	18,977,874
1892	6,340,724	3,203,922	1,179,856	2,236,732	2,042,198	2,849,483	1,088,254	18,941,169
1893	6,407,279	3,746,121	1,133,368	2,218,905	1,694,930	4,443,963	1,042,093	20,686,659
1894	6,547,387	4,351,526	1,119,738	2,363,386	1,659,968	3,950,478	787,087	20,719,570
1895	6,213,131	4,403,158	976,836	1,867,920	1,584,473	4,401,354	752,466	20,199,338
1896	6,070,895	4,799,433	976,126	2,025,754	1,605,674	4,183,999	745,543	20,407,424
1897	8,090,346	3,934,135	954,949	1,737,011	1,289,822	6,138,865	638,416	22,783,544
1898	7,226,034	3,849,357	1,070,202	1,761,440	1,433,632	3,713,401	613,355	19,667,121
1899	7,347,604	4,119,891	1,043,645	1,953,134	1,590,447	5,214,074	622,911	21,891,706
1900	7,809,152	3,769,742	1,059,193	1,989,279	1,333,294	4,878,820	718,159	21,557,639
1901	7,989,548	4,193,264	1,050,623	2,174,459	1,428,078	7,942,771	958,410	25,737,153
1902	7,351,753	3,912,514	887,021	2,059,175	1,265,706	5,284,824	1,198,437	21,959,433
1903	7,841,602	4,186,800	1,099,510	2,211,792	1,535,144	4,748,365	1,478,665	23,101,878
1904	7,287,099	4,671,084	1,077,546	1,751,397	1,793,229	5,219,107	1,716,977	23,516,439

1905	8,259,085	4,847,090	998,922	2,003,716	1,708,963	9,830,216	1,811,570	29,479,562
1906	7,799,160	4,905,225	1,168,939	2,175,035	1,734,856	7,903,347	1,492,923	26,279,485
1907–08	7,632,330	5,300,564	1,492,695	2,047,390	1,935,625	6,122,923	968,422	25,499,949
1908–09	8,009,858	4,754,298	1,378,624	1,881,817	2,109,078	6,465,038	861,392	25,451,085
1909–10	8,081,111	4,676,315	1,197,556	1,808,436	2,177,813	10,314,755	1,373,181	29,629,169
1910–11	10,119,243	4,134,144	1,153,708	1,692,475	2,026,121	9,163,235	1,676,507	29,965,433
1911–12	9,367,550	4,886,157	1,196,396	1,885,136	2,205,436	13,677,125	1,467,072	34,685,872
1912–13	7,384,055	4,264,054	1,379,905	1,988,241	2,812,878	14,455,488	1,074,843	33,380,464
1913–14	8,297,626	4,308,707	1,280,147	1,859,427	2,674,685	13,891,398	904,458	33,207,748
1914–15	7,730,191	4,940,083	1,251,666	1,994,430	2,755,291	11,515,086	1,137,884	31,264,631
1915–16	9,166,851	4,737,145	933,682	2,076,851	3,341,182	14,538,320	1,066,677	35,860,708
Total	330,732,543	165,330,892	46,727,323	89,709,942	65,138,487	205,595,704	27,425,195	930,660,146

COMPARATIVE TABLE showing Number and Value of Vessels and Boats engaged in the Fisheries of Canada, together with the Value of Fishing Material used, since 1880.

Years.	Vessels.			Boats.		Value of Nets and Seines.	Value of other Fishing Material.	Total Capital Invested.
	Number	Tonnage.	Value.	Number	Value.			
			$		$	$	$	$
1880	1,181	45,323	1,814,688	25,266	716,352	985,978	419,564	3,936,582
1881	1,120	48,389	1,765,870	26,108	696,710	970,617	679,852	4,113,049
1882	1,140	42,845	1,749,717	26,747	833,137	1,351,193	823,938	4,757,985
1883	1,198	48,106	2,023,045	25,825	783,186	1,243,366	1,070,930	5,120,527
1884	1,182	42,747	1,866,711	24,287	741,727	1,191,579	1,224,646	5,014,663
1885	1,177	48,728	2,021,633	28,472	852,257	1,219,284	2,604,285	6,697,459
1886	1,133	44,605	1,890,411	28,187	850,515	1,263,152	2,720,187	6,814,295
1887	1,168	44,845	1,989,840	28,092	875,316	1,499,328	2,384,356	6,748,840
1888	1,137	33,247	2,017,558	27,384	859,953	1,594,992	2,390,502	6,863,005
1889	1,100	44,936	2,064,918	29,555	965,010	1,591,985	2,149,138	6,770,151
1890	1,069	43,084	2,152,790	29,893	924,346	1,695,358	2,600,147	7,372,641
1891	1,027	39,377	2,125,355	30,438	1,007,815	1,644,892	2,598,124	7,376,186
1892	988	37,205	2,112,875	30,513	1,041,972	1,475,043	3,017,945	7,647,835
1893	1,104	40,093	2,246,373	31,508	955,109	1,637,707	3,174,404	8,681,557
1894	1,178	41,768	2,409,029	34,102	1,009,189	1,921,352	4,099,546	9,439,116
1895	1,121	37,829	2,318,299	34,268	1,014,057	1,713,190	4,208,311	9,253,848
1896	1,217	42,447	2,041,130	35,398	1,110,920	2,146,934	4,527,267	9,826,251
1897	1,184	40,679	1,701,239	37,693	1,128,682	1,955,304	4,585,569	9,370,794
1898	1,151	38,011	1,707,180	38,675	1,136,943	2,075,928	4,940,046	9,860,097
1899	1,178	38,508	1,716,973	38,538	1,195,856	2,162,876	5,074,135	10,149,840
1900	1,212	41,367	1,940,329	38,930	1,248,171	2,405,860	5,395,765	10,990,125
1901	1,231	40,358	2,417,680	38,186	1,212,297	2,312,187	5,549,136	11,491,300
1902	1,296	49,888	2,620,661	41,667	1,199,598	2,103,621	5,382,079	11,305,959
1903	1,343	42,712	2,755,150	40,943	1,338,003	2,305,444	5,812,857	12,241,454
1904	1,316	43,025	2,592,527	41,938	1,376,165	2,189,666	6,198,584	12,356,942
1905	1,384	41,640	2,813,834	41,463	1,373,337	2,310,508	6,383,218	12,880,897
1906	1,439	40,827	2,841,875	39,634	1,462,374	2,426,341	7,824,975	14,555,565
1907-08	1,390	36,902	2,731,888	38,711	1,437,196	2,266,722	8,374,440	14,826,592
1908-09	1,411	40,818	3,571,871	39,965	1,696,856	2,283,127	7,957,500	15,508,275
1909-10	1,759	37,662	3,303,121	41,170	1,855,629	2,572,820	9,626,362	17,357,932
1910-11	1,680	38,454	3,028,625	38,977	2,483,996	2,786,548	10,720,701	19,019,870
1911-12	1,648		3,502,928	36,761	2,695,650	2,453,191	12,281,135	20,932,904
1912-13	1,669		4,671,923	34,501	3,072,115	4,154,880	12,489,511	24,388,459
1913-14	1,902		4,445 259	37,686	3,834,178	3,423,110	15,761,486	27,464,033
1914-15	1,892		4,390,660	39,144	3,957,912	3,313,581	13,071,009	24,733,162
1915-16	1,984		4,594,504	38,536	4,345,954	3,544,087	13,371,039	25,855,575

COMPARATIVE TABLE showing the Number of Persons employed in the Fishing Industry since 1895.

Year.	Number of Persons in Canneries and Fish-houses.	Number of Men in Vessels.	Number of Men in Boats.	Total Number of Fishermen.	Total Number of Persons in Fishing Industry.
1895	13,030	9,804	61,530	71,334	84,364
1896	14,175	9,735	65,502	75,237	89,412
1897	15,165	8,879	70,080	78,959	94,124
1898	16,548	8,657	72,877	81,534	98,082
1899	18,708	8,970	70,893.	79,893	98,601
1900	18,205	9,205	71,859	81,064	99,269
1901	15,315	9,148	69,142	78,290	93,605
1902	13,563	9,123	68,678	77,801	91,364
1903	14,018	9,304	69,830	79,134	93,152
1904	13,981	9,236	68,109	77,345	91,326
1905	14,037	9,366	73,505	82,871	96,908
1906	12,317	8,458	67,646	76,104	88,421
1907-08	11,442	8,089	63,165	71,254	82,696
1908-09	13,753	8,550	62,520	71,070	84,823
1909-10	21,694	7,931	60,732	68,663	90,357
1910-11	24,978	8,521	60,089	68,610	93,588
1911-12	25,206	9,056	56,870	65,926	91,132
1912-13	23,327	9,076	56,005	65,081	88,408
1913-14	26,893	10,525	61,251	71,776	98,669
1914-15	24,559	9,400	60,554	69,954	94,513
1915-16	27,320	9,541	65,321	74,862	102,182

OTHER APPENDICES.

Oyster Culture.

The officer in charge of oyster culture in the course of the season, visited Cocagne bay, N.B., and removed the eelgrass and sediment that had accumulated on the beds there.

He also visited Richibucto river, surveying that portion of it above Chapel point, with a view to determining the quantity of oysters that should be removed therefrom yearly, and allocating areas on which mud-digging may be permitted.

On examination of Kouchibouguac river and bay, Black river and St. Louis river and bay, he came to the conclusion that there was no prospect for the future cultivation of oysters in these waters under existing conditions.

The beds at Shediac were examined and found to be in a rather dirty condition as a result of not having been worked for some time. On his recommendation the department permitted licensed fishermen to operate thereon from the 15th to the 30th of October, with beneficial results to the beds.

In Appendix 10 will be found details of the work of the official in charge of oyster culture.

Fishing Bounty.

The fishermen of the Maritime Provinces received the sum of $158,741.05 as bounty on the respective catches of fish during the year 1915. The number of claims received during the year was 14,877, which is an increase of 596 over 1914. The number of claims paid was 14,857, an increase of 641 over the previous year. The sum of $59,676.70 was paid to 941 vessels and their crews, which is a decrease of 14 vessels, when compared with the preceding year.

To boat and boat fishermen was paid the sum of $99,064.35, the number of boats being 13,926 and of boat fishermen 24,670 an increase of 665 boats and 1,842 men.

The amount of bounty expended in each province, for 1915, was as follows:—

Nova Scotia	$ 90,611 05
New Brunswick	17,609 95
Prince Edward Island	9,513 95
Quebec	41,006 10

Since the inception of the system in 1882, the sum of $5,377,185.81 has been paid to fishermen, and vessel and boat owners, with a view to encouraging them in the development of the industry.

The regulations governing the payment of the bounty, as well as the particulars respecting its distribution will be found in Appendix 11.

Fisheries Museum.

The museum is situated at the corner of Queen and O'Conner streets, Ottawa. It is open to visitors on week days from 9.30 A.M. to 5.30 P.M., and on Sundays from 2 to 5 P.M. During the year ended March 31, 1916, it was visited by 45,110 persons.

Mounted specimens of many of the fishes of the British North American waters are on exhibition and the number is being added to annually. Alterations have been made during the past year in order to provide the necessary space to exhibit new specimens. There are now two halls open to the public instead of one as formerly.

The skeleton of a fin back whale is to be seen in the upstairs hall as well as a sea-lion, a number of walrus and seals, and models of a grampus, and two octopi. A collection of water-birds is also on exhibition, in which are included specimens of nearly all the ducks indigenous to Canadian waters.

In Appendix 12 will be found a detailed report on the museum by the department's naturalist.

United States Fishing Vessels Entries.

In Appendix 13 will be found lists of United States fishing vessels which made use of Canadian ports, and of United States fishing vessels to which *modus vivendi* licenses were issued during the year 1915-16.

On the Atlantic coast, an aggregate of 1,633 entries was made by 230 vessels, against 1,495 entries by 219 vessels during the preceding year. *Modus vivendi* licenses were issued to 73 United States vessels during the year, the revenue from which amounted to $9,912. The increase in the amount of revenue received over that for the year before, when there were 70 vessels to which licenses were issued, was $1,033.

On the Pacific coast, there were 611 entries made by 124 vessels, although in the preceding year the total number of entries was only 46, made by 4 vessels. The privilege granted to United States fishermen, of shipping their fish from British Columbia ports, is the explanation of this remarkable increase in the number of vessels calling at these ports.

Fisheries Patrol Service.

For the prevention of illegal fishing, and for the general enforcement of the fisheries regulations in the inland waters and for the prevention of illegal lobster and other fishing on the sea coast, the Fisheries Branch has under its control in the various provinces a number of motor launches and small steamers. Reports on the work of these craft during the year 1915-16 will be found in Appendix 14.

Fisheries Expenditure and Revenue.

A statement of the total expenditure and revenue in connection with the fisheries of Canada, during the fiscal year ended March 31, 1916, forms Appendix 15 of this report.

The expenditure was as follows:—

Salaries and disbursements of Fishery Officers	$247,539 56
Fish breeding	275,079 38
Miscellaneous expenditure	433,943 30
	$956,562 24

In addition to which the sum of $158,678.85 was distributed as fishing bounty.

The total revenue from fishing licenses, fines, etc., in the different provinces was $106,288.26. This includes the sum of $9,912 paid by United States fishing vessels for *modus vivendi* licences.

Fish Breeding.

The annual report on the work carried on in connection with the breeding of fish in the various establishments throughout the Dominion during 1915-16 will be found in Appendix 16.

Exports and Imports of Fish.

Statements showing the quantities of the chief commercial fish and fish products imported into Canada for home consumption, and the quantities of the chief commercial fish and fish products, the produce of Canada, exported during the fiscal year, 1915-16, will be found in Appendix 17.

The quantities of the various kinds exported in any one year do not necessarily bear any relation to the quantities caught in that year, for the reason that the products may not be all exported during the year in which the fish are caught. The figures in this Appendix are taken from the report of the Customs Department and are reproduced, therefore, in a convenient form, for the purpose merely of showing to what countries the various products are sent.

Special Lobster Statistics.

In Appendix 20 will be found a statement showing, by districts and counties, the quantity of lobsters canned and shipped in shell, as well as the number of canneries and traps used in the industry since the year 1897.

Outside Fisheries Staff.

The names of the various inspectors of fisheries and fishery overseers, with the district over which they have jurisdiction, as well as a list of officers in charge of fish hatcheries and of officers in charge of fisheries patrol boats, will be found in Appendix 21.

General.

The officers and clerks of the fisheries branch of the department performed their duties in a loyal and efficient manner in the course of the year, and I desire to express to you my high appreciation of their services.

I have the honour to be, sir,
Your obedient servant,

G. J. DESBARATS,
Deputy Minister of the Naval Service.

APPENDIX 1.

NEW BRUNSWICK.

District No. 1.—Comprising the counties of Charlotte and St. John. Inspector, John F. Calder, Campobello.

District No. 2.—Comprising the counties of Albert, Westmorland, Kent, Northumberland, Gloucester and Restigouche. Inspector, D. Morrison, Newcastle.

District No. 3.—Comprising the counties of Kings, Queens, Sunbury, York, Carleton, Victoria and Madawaska. Inspector, H. E. Harrison, Fredericton.

REPORT ON THE FISHERIES OF DISTRICT No. 1.

To the Superintendent of Fisheries,
Ottawa.

Sir,—I have the honour to present herewith my tenth annual report on the fisheries of District No. 1, Province of New Brunswick, together with the statistics of the different subdivisions.

It is very gratifying to be able to report a substantial increase in the value of the catch this year as compared with the previous one. The value of last year's catch amounted to $2,049,322, against $2,111,870 for this year, an increase of about 3 per cent. As stated in my report for last year, that season was a very successful one for the fisheries of the district—in fact, it was one of the very best seasons the fishermen had had for many years, and I really believed the highwater mark had been reached for many years to come; in fact, the records of your Department show only one year—1911-12—when the value of the yield exceeded that of last year. This year, however, the value of the yield is slightly in excess of that of 1911-12, even. One splendid feature of the increase for this year is that it is quite generally distributed throughout all of the different branches of the industry. For some seasons one or two branches are very successful, while the others did very little. During 1915-16 all kinds of fishing brought good returns; consequently, all those engaged in the industry in the district, with very few exceptions, enjoyed a highly prosperous season.

Salmon.

There is considerable decline to be noticed in the salmon catch for this year as compared with last year. This shortage may well be attributed to the very bad weather experienced during the salmon season. As the greater portion of the catch is taken by the drift-net fishermen, who operate in the bay of Fundy, weather conditions play an important part in this fishery. As the weather was exceptionally bad the drift fishermen had a poor year, indeed. At the same time, large quantities of salmon entered the rivers of the district and proceeded to their spawning resorts.

Lobsters.

The lobster catch was practically the same as during the previous season. I have given the same rate as contained in last year's report, but, as a matter of fact, the prices paid this year, particularly during the winter months, were very much higher than were paid during any recent season. The amount given for the catch—9,232 hundredweight—is approximately correct. Considerable illegal lobster fishing was carried on during the season. Many traps were destroyed by the patrol boats and fishery officers during the close season, and many small lobsters were liberated by them during the open season, yet at the same time, more especially in certain sections of Charlotte county, many traps were put out during the close season, and quantities of small lobsters taken during the open season as well. Special Guardian Joseph Ellis, Maces Bay, was very energetic in getting after fishermen who were disposed to save small lobsters in his district. During the month of May he liberated over 1,700 lobsters that were under the legal size. Such action on his part had a very salutary effect on those who were engaged in this traffic, and I really believe they ceased such operations during the remainder of the season. In St. John county four fishermen put out their traps before the date set for opening the season. They were prosecuted and fined for such action. I feel sure this will have the effect of preventing others from putting out traps before the season opens.

Hake.

The quantity of hake taken was more than double the 1914-15 catch. Good prices were paid for dried hake. The dogfish pest did not trouble the fishermen to any great extent.

Haddock, Cod and Pollock.

There is very little to report in connection with these branches; the pollock and cod catches were less than those for the previous year, while the haddock yield was considerably greater.

Sardines.

This has been a very ordinary year for this fishery. The sardine industry is worth more to the district than all other branches combined. The drag-seine fishermen operating at St. John harbour did exceptionally well at the sardine fishery during the fall months. At the present time very tense feelings exist between the Canadian weir owners and the American sardine herring buyers, due to the fact that the buyers have served notice on the weir men that they will not pay for fish, which, on arrival at the canneries, are found to contain "red feed." As yet, however, outside of such declaration of their intentions by the canners, very little actual grievance exists, as very few fish have so far been condemned. I am keeping a close watch on the situation and if the condition warrants will recommend action by your Department in this respect, as I am of the opinion the Fisheries Act gives your Department authority to take action. There was a very large increase in the quantity of smoked herring put up at Grand Manan.

Conclusion.

There is very little further to be said in connection with the fishing operations for this year. All branches of the fisheries are fairly prosperous, and all engaged therein are being well remunerated for their efforts. The assistance of the Department in protecting the fisheries and in their propogation as well is, I believe, appreciated by our fishermen. While many of the young men from the fishing villages have offered their services to their King and country, at the same time I do not believe any appreciable diminution of the catch will occur, and everything points toward a very successful year for 1916.

I desire once again to express my thanks to yourself and officials of your Department for many courtesies extended during the past year.

I am, sir, your obedient servant,

J. F. CALDER,
Inspector of Fisheries.

REPORT ON THE FISHERIES OF DISTRICT No. 2.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit my third annual report on the fisheries of District No. 2, Province of New Brunswick, for the fiscal year 1915-16, together with a statistical statement of the quantities of fish taken, the fishing material used and the number of persons engaged in the fisheries.

The returns show the value of fish taken to be $2,589,152, against $2,849,820 for the previous year, a decrease of $260,668.

SALMON.

There was an increase in the catch of salmon of 2,507 hundredweight, making an increased value as compared with last year of $37,605. Weather conditions on the Miramichi were against this fishery at the beginning of the season, and while the catch in the aggregate exceeded that of last year, the catch at the mouth of the Miramichi river and bay fell off, owing chiefly to the hair seals destroying large quantities of fish, especially around Portage and Fox Islands, where important fishing grounds have become worthless. Had conditions been favourable in the Miramichi district there would have been a very much larger catch, showing that the hatcheries, together with better protection, are more than keeping up the supply. The fall run on the Miramichi was equal to, if not larger, than that of former years.

LOBSTERS.

I am pleased to report that this important fishery, which, owing to the falling off a few years ago, caused alarm, shows a vast improvement; and, with the regulations strictly enforced, one of our greatest fishing industries will be preserved.

There were 135 factories in operation in 1915, as compared with 155 in 1914. There was an increased catch of 3,200 hundredweight, representing an increased value of $27,835, notwithstanding that a severe storm in the height of the fishing season destroyed the fishing gear, which could not be replaced, and that the season was shortened by five days.

HERRING.

The returns show a decrease in the catch amounting to 33,366 hundredweight, representing a decrease in value of $94,469. This, to some extent, is accounted for by the small quantity of salt available and the increased value of the same.

As the smoking industry is increasing, there is every reason to hope that these fish, which have been used so extensively for fertilizing purposes, will be either salted or smoked, and thus become a food fish.

MACKEREL.

The catch has decreased 10,109 hundredweight. This can only be explained by the weather conditions, as the fish did not come into the bays the same as last year. The market conditions were also poor.

Smelt.

There is a falling off in this fishery in comparison to 1915 of 12,205 hundredweight, representing a decreased value of $122,050. As this is one of the most important fisheries carried on in the winter season, giving employment to a large number of people, at a season of the year when no other employment is available, it is very important that it should receive every possible protection.

The weather conditions largely explain the shortage on the Miramichi river and tributaries. There was no ice to enable the fishermen to set their nets, until the month of January, and it is claimed that these fish had gone out to sea before then. This condition applied to the other districts as well. Owing to the great drain on this important fishery, a strict enforcement of the regulations and the careful guarding of these fish in the spawning season is necessary.

Cod.

There was an increase in the catch of 597 hundredweight. In June these fish were never known to be so plentiful, but, the fishermen being unable to procure salt, did not prosecute this fishery as they would otherwise have done.

Oysters.

There was a decrease of 2,632 barrels in comparison with last year.

Clams and Quahaugs.

This fishery falls short of last year's catch by 5,878 barrels. There is a decrease in clams of 681 barrels, and a decrease in quahaugs of 5,197 barrels. This large decrease in quahaugs is explained by the fact that the market value was so low that it did not pay to fish them.

The following is a return of the various kinds of licenses issued in my district during the fiscal year:—

No. of Salmon Fishing Licenses			478
" " Oyster " "			467
" " Special Oyster "			24
" " Herring Weir "			8
" " Smelt Bag "			2,863
" " " " (Free)			29
" " " Gill Net "			166
" " Bass Gill Net "			74
" " Bass Bow Net "			[illegible]
" " Lobster "		151	
" " Lobster Additional		102	
			253
" " Quahaugs			[illegible]

I am, sir,
Your obedient servant,

D. MORRISON,
Inspector of Fisheries.

REPORT ON THE FISHERIES OF DISTRICT No. 3 (INLAND).

To the Superintendent of Fisheries,
Ottawa.

Sir,—I have the honour to submit my fourteenth annual report on the inland fisheries of New Brunswick for the fiscal year 1915-16, attached to which is a statistical report of the quantity of fish taken and the market value thereof and the materials used in connection with the fisheries and the approximate value of the same.

A comparative statement shows a total value of fish of about 10 per cent less than the previous year:—

Years.	Value of fish.	Value of materials.
1914-15	$10,941	$15,099
1915-16	36,123	45,870

This is a fairly large depreciation, but not a really serious matter when analyzed, the fact being that in only one fishery, which has usually yielded fair annual returns, has there been shown an indication of depletion, and in this case that of pickerel, the fish appeared to be scarce and of a small size.

Beginning with our most valuable inland water fish, the salmon, while all are pleased when fishermen get good financial returns for their labour and expense, besides having their tables well supplied with these splendid fish, I cannot say that I feel downhearted over the result of last season's catch, and while the three hundred odd salmon fishermen had to be content with some $2,000 less for their work, I am of the opinion that because of climatic conditions they will reap the benefit later.

In the midst of the fishing season very heavy rain storms came on, with the result that the rivers rose to a great height and so suddenly that practically all nets that were set had to be abandoned for the time, being submerged to a depth of six or eight feet for some days, some being carried away and lost.

While these conditions prevailed it is estimated that many hundred of salmon passed up towards the spawning beds in the Tobique and other waters; therefore, I believe fishermen will reap benefits in the future because of such conditions.

Kings county fishermen suffered most because of this, or some other conditions, the catch being less than 50 per cent of that of the year previous; Queens, somewhat less, Sunbury, about 50 per cent less; York, strange to say, better than the previous years; Carleton, about the same as 1914, with Victoria and Madawaska, where it is rod and line fishing, better than 1914.

While the Tobique Salmon Club and other parties fishing on the Tobique river had not as good a season as in some previous years, the results were much more satisfactory than in 1914.

I have read the report of Mr. T. F. Allen, Superintendent of the Tobique Salmon Club, to his club members in New York, U.S.A., and while he thinks some illegal netting of salmon in the St. John river affected them considerably, he states that had it not been for the flood in the midst of their usually best time for fly fishing, he thinks the season would have been fairly satisfactory, with the whole Tobique river swarming with spawn fish in September and October.

Mr. Allen speaks of two club records as having been broken, a record salmon of 31½ pounds weight having been taken—that, I may say, is considered a large fish for these waters—and ten salmon taken in one day from one pool by one man, a member of the club. This club has controlled most of the fishing in this river for about 25 years.

On the southwest Miramichi river my district seems to have received a present advantage, the flood carrying away the many long nets set for salmon in the tidal

waters, and, presumably, for a time allowing a fair number of salmon and grilse to ascend to the head waters. When the water was in condition very good fishing prevailed, but the fishery guardians should be limited in the number of salmon or grilse they may take each week. Parties going in to fish often find many of the best pools continually whipped. This reference applies to two of the men, more particularly, who were on patrol duty last season, but who will not be on the present year.

Trout fishing is reported to have been better than in 1914, returns showing a somewhat larger catch, particularly in Madawaska county.

While this fishery may not be classed as a commercial fishery, the amount of trout taken and consumed shows it to be quite an important table commodity; therefore, it would appear as though it would be of much benefit to many people if the fish culture branch could supply a liberal quantity of speckled or brook trout fry, to place in all suitable waters now practically depleted, after such waters have been examined and approved by a competent officer of the department.

Not only are trout of much value as food, but good fishing is a great pleasure to many hundreds of natives, and attracts many foreign sportsmen to our country, leaving money at times and incidentally assisting our transportation companies.

Limited quantities of whitefish, about the size of the herring, are found in the St. Croix waters, York county, the Salmon river, Victoria county, and Baker lake, Madawaska county, and are a choice food fish.

The catch of bass fell off over 30 per cent compared with 1914, and appears to be going to about zero again. The catch of pickerel was extremely disappointing. It is difficult to account for this condition. Fishermen are inclined to the view that this fish is being depleted, the average size of the fish taken being much smaller than formerly, as mentioned in the first of this report.

This may be the correct view, and if it is thought advisable to try to save the fishery probably it will require more strict regulations for their protection.

Sportsmen, generally, would like to see them further diminished, as they, no doubt, eat many trout in the dead water fishing resorts.

The sturgeon fishery was not quite up to the catch of 1914, but as they are more numerous than a few years ago, there is some prospect of this fishery assuming considerable proportions; however, it may be some years before it gets to be the important industry that it once was in the St. John river. There are a large number of small sturgeon in this river, salmon fishermen often getting them in their nets.

The catch of eels was considerably less than in 1914. Salmon and shad fishermen complain bitterly because of the great number there appears to be in the warm waters, and of the toll they take of the salmon and shad, when in the nets.

Because of the difficulty in keeping eels alive and in a healthy condition through the warm weather, so as to ship them when the weather is cooler and the market demands, the fishery is not prosecuted as generally as it otherwise would be.

There will be noticed a decrease of over 30 per cent in the catch of alewives. This was not because of a scarcity of these fish, I am informed, but the bottom appeared to drop out of the market, the demand being so light that fishermen generally did not give much time to this fishery. It is to be hoped that this was only a temporary setback, as the fishery has been a source of considerable income to the fishermen of the lower St. John river counties.

The satisfactory catch of Shad, as compared with that of many years previous, was very pleasing to the fishermen and consumers alike, the increase over 1914 being about 30 per cent. When one considers the fact that a few years ago we had about given up hope that this valuable fishery might be saved, the catch being so small, it certainly looks encouraging, and whether the Department deserves the credit or not for this very satisfactory state, because of the operation of the shad hatchery in this district for the past three seasons—and I understand from one authority that it is supposed to be a little early to expect much result from this source—the fact remains

that the fish were caught and the fishermen are satisfied to give the credit to the good work of the hatchery. Several fishermen have told me that they never before saw such large shad—beside the small ones, which they consider the product of the hatchery—many of them weighing 7 pounds to 9 pounds each, and some larger.

I hope this good work may continue in my district, but I wish to most seriously urge upon the Department, and in this I am supported by the local officers, the fishery guardians and most of the fishermen—only those fishermen who wish to fish illegally not supporting it—that the shad fishery regulations of 1915 be amended so as to have the season close not later than the 10th of July—the 30th of June would be better, as it was under the former regulations—because the water is so warm at that date that shad are soft and flabby and of very little value for table use, but some fishermen will continue to drift or put out stationary nets, causing no end of trouble to the officers and fishery guardians in preventing such men from taking salmon in their nets. It is quite impossible to keep a fishery guardian following drifting parties to see that they do not take salmon instead of shad—it would require an army of patrol men—and as there are many men in the upper counties who will fish illegally, if given the opportunity, the present shad fishing regulations give them an excuse to use a drift net.

The following is a synopsis of reports and recommendations from the local officers:—

Overseer Gagnon, in Madawaska county, reports fishery conditions as being favourable and an increased catch of fish, with no breaches of the law in the open season coming to his attention.

Overseer Watson, in Victoria county, reports the best catch of shad in the past twenty-five years—these fish are taken a very short distance below the Grand Falls—the fish being of a very large size. He considers the fisheries are improving in his county.

I have no overseer in Carleton county, but from reports of the special fishery guardians and from my own observation, conditions generally are not much changed compared with former years, excepting on the southwest Miramichi river, where rod and line fishing was better than usual, as previously referred to in this report. There is a very great improvement in the conduct of the millmen regarding mill refuse.

Overseer McNally, reporting for the St. John river district, in York county, says there was a good run of salmon and some fine catches made, one man taking over 28 hundredweight, and another man more than 23 hundredweight; also, that most of his district being non-tidal, water and nets being removed each alternate fortnight, salmon have a fair chance to escape. Trout fishing was good, fish 17 inches in length being taken from the Pokiok stream. He reports a great run of shad, but urges that as the present regulations work out badly, the time to stop shad fishing be left with the inspector for the district, so that parties inclined to violate the salmon fishery regulations by pretending to drift for shad, but really for salmon, may be prevented from drifting at all after the shad fishing season is past.

He refers to the great number of eels and the destruction they do the salmon in the nets, and suggests that the Department take some action regarding a market for eels. Pickerel have almost disappeared from the waters of his district.

Overseer Babbitt, in Sunbury county, reports the catch of salmon less because of the summer freshet; the take of shad as being very good; alewives a very light catch, because of no demand; pickerel fishing results very disappointing, fishermen believing that this fishery has been overdone; eels not fished for so extensively, and trout about the average, with streams clear of sawdust and mill refuse.

Overseer Holmes, in Queens county, reports salmon fishing about the same as in the previous year; shad fishing the best in years; alewives neglected, because of the low price, and no trouble from mills.

Conditions in Kings county, as reported by the special guardians, were about normal so far as trout are concerned. There was a good increase in the take of shad.

but decided reductions in the catches of salmon, bass and eels, and an increased catch of alewives. The latter, being caught near the St. John market, with good transportation service, can be shipped in fresh each day.

In conclusion, I beg to say that I did considerable patrol service last season, particularly in Carleton county, where I have no local officer, and the special guardians exercise direct supervision. Unfortunately, there are many men in this district who consider it clever to evade the fishery regulations.

Several cases of violations were successfully prosecuted in the counties of York, Carleton and Madawaska, and fishing materials seized and confiscated, some of it being sold and proceeds credited to the Department, and some still held for sale.

Fly-surface-fishing was successfully tried at different places along the St. John river, and several salmon and grilse were taken, the sport being very interesting when the water conditions are right.

I herewith append a statement of the number of different kinds of licenses issued by me during the year 1915-16:—

Salmon Fishery Licenses	106
Salmon Net Licenses	163
Bass Fishery Licenses	29
Sturgeon Fishery Licenses	5

I am, sir,
Your obedient servant,

H. E. HARRISON,
Inspector of Fisheries.

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the Counties of Charlotte and St. John, Province of New Brunswick, during the year 1915-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.													Fishing Gear.						
		Sailing and Gasoline Vessels.					Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.		Weirs.		Trawls.		
		40 tons and over. No.	20 to 40 tons, number.	10 to 20 tons, number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.
	Charlotte County.				$			$		$			$			$		$		$	
1	Lepreau to Red Head		2	2	5000	8	100	1500	37	9350	74				50	7500	50	50000			1
2	Red Head to L'Etang			6	3000	19	140	2870	74	17250	184	13	21200	33	478	10840	62	30500	90	2460	2
3	L'Etang to St. George			4	1500	14	241	7200	51	9680	217	1	1000	2	377	8090	59	50000	75	350	3
4	St. George to St. Stephen	1	3	10	68000	32	342	11970	40	15000	365				356	18650	109	120000	15	600	4
5	Grand Manan		1	55	36700	128	205	4250	191	64600	317				577	21300	73	144000	122	2440	5
6	Campobello		3	5	5000	59	140	2600	121	40000	300	3	2400	6	225	3680	23	9000	100	2500	6
7	West Isles						200	2000	210	24000	430	10	20000	80	150	7500	110	50000	20	400	7
	Totals	1	9	82	119200	260	1368	32390	724	179880	1887	57	44600	121	2213	77530	486	453500	422	8750	
	St. John County.																				
1	St. John Harbour		1	1	1300	8	180	6300	65	19500	230	2	1600	4	420	16000	27	18400			1
2	Lepreau to Chance Harbour		3	3	3000	20	20	400	26	6500	52				97	1600	8	8000	26	800	2
3	Chance Harbour to St. John			4	2000	8	120	2400	110	3300	240				1200	14000	25	12500	30	875	3
4	Mispec to Tynemouth Creek						2	24	10	1500	13	2	1700	4			2	100	2	24	4
5	Tynemouth to Albert County			1	600		10	285	7	1075	14				8	63					5
	Totals		4	9	6900	36	332	9409	218	31875	549	4	3300	8	1725	31663	62	39000	57	1699	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the Counties of Charlotte and St. John, Province of New Brunswick, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Fishing Gear.				Canneries.				Other Material.									
		Hand-lines.		Lobster traps.		Sardine Canneries.		Clam Canneries		Freezers and Ice Houses.		Smoke and Fish Houses.		Fishing Piers and Wharves.		Pile Driver and Seine Reels.		Persons employed in Canneries, Freezers and Fish Houses.	Number.
		Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	
	Charlotte County.		$		$		$		$		$		$		$		$		
1	Lepreau to Red Head	....	....	2000	2000	....	.....	2	12000	...	.....	...	..	5	6000	12	1200	60	1
2	Red Head to L'Etang	100	50	2370	2370	3	67000	2	3000	5	1700	27	9000	23	19000	96	2275	270	2
3	L'Etang to St. George	220	110	818	818	....	.....	..	.....	.....	..	30	1700	16	800	90	2560	4	3
4	St. George to St. Stephen	50	25	500	500	1	257000	1	3000	4	60200	3	3000	1	2000	108	9600	200	4
5	Grand Manan	810	810	19560	19500	....	.....	...	.....	1	500	453	226200	113	44500	50	11025	415	5
6	Campobello	500	250	700	700	...	.....	....	.....	.....	.....	90	6000	49	5000	30	1003	.....	6
7	West Isles	700	350	1800	1800	1	25000	....	.....	.....	.....	60	9000	50	5000	190	7800	60	7
	Totals	2380	1595	27688	27688	5	349000	5	18000	10	62400	663	254900	257	82300	576	35460	1009	
	St. John County.																		
1	St. John Harbour	....	.....	1000	1000	....	..	....	.....	7	93000	86	69000	60	91000	.....	..	60	1
2	Lepreau to Chance Harbour	....	.....	1050	1050	....	....	....	...	....	...	3	600	3	300	.....	.....	15	2
3	Chance Harbour to St. John	....	.....	3000	3000	....	....	....	....	4	2800	40	4000	16	1600	..	.....	20	3
4	Mispec to Tynemouth Creek	....	....	800	800	....	..	....	.....	....	....	.....	...	...	....	.....	...	.....	4
5	Tynemouth to Albert County	13	13	1045	1045	....	.....	.	.....	.....	..	....	...	..	....	...	.....	.....	5
	Totals	13	13	6895	6895	....	.....	...	....	11	95800	129	73600	75	92900	.....	..	95	

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the Counties of Charlotte and St. John, Province of New Brunswick, during the year 1915-16.

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and cusk, cwt.	Hake and cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Number.
	Charlotte County.		$		$		$		$		$		$		$		$		$	
1	Lepreau to Red Head	..	.....	503	7545	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
2	Red Head to L'Etang	....	.....	908	13620	4650	9300	9290	23225	49602	49602	1000	1000	10980	10980	11	55	.....	.....	2
3	L'Etang to St. George	....	.....	313	4695	3830	7660	1500	3750	1360	1360	2700	2700	.....	.....	.....	.....	.....	.....	3
4	St. George to St. Stephen	....	.....	37	555	123	246	2100	5250	340	340	.....	.....	1700	1700	.....	.....	.....	.....	4
5	Grand Manan	....	.....	4020	60300	6700	13400	532	1330	30000	30000	4405	4405	153360	153360	.....	.....	.....	.....	5
6	Campobello	....	.....	210	3150	4000	8000	3870	9675	33300	33300	18000	18000	1320	1320	.....	.....	.....	.....	6
7	West Isles	....	.....	600	9000	600	1200	400	1000	600	600	12000	12000	800	800	.....	.....	.....	.....	7
	Totals	....	.....	6591	98865	19903	39806	17692	44230	115202	115202	38105	38105	168169	168160	11	55	.....	.....	
	St. John County.																			
1	St. John Harbour	540	8100	500	7500	.....	.....	.....	.....	.....	.....	.....	.....	1300	1300	1800	9000	52500	52500	1
2	Lepreau to Chance Harbour	310	4650	775	11625	420	840	50	125	3500	3500	.....	.....	.....	.....	.....	.....	.....	.....	2
3	Chance Harbour to St John	1260	18900	516	7740	620	1240	24	60	4400	4400	.....	.....	.....	.....	1480	7400	1600	1600	3
4	Mispec to Tynemouth Creek	46	690	435	6525	35	70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
5	Tynemouth to Albert County	....	.....	435	6525	.....	....	.....	.....	.....	.....	60	60	....	.....	.....	.....	.....	.....	5
	Sotals	2156	32340	2641	39615	1075	2150	74	185	7900	7900	60	60	1300	1300	3280	16400	54100	54100	

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the Counties of Charlotte and St. John, Province of New Brunswick, during the year 1915-16.—*Concluded.*

Number.	Fishing Districts	Sardines, brl.	Sardines, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Eels, cwt.	Eels, value.	Squid, brl.	Squid, value.	Cockles, cwt.	Cockles, value.	Clams, brl.	Clams, value.	Dulse, cwt.	Dulse, value.	Scallops, cwt.	Scallops, value.	Number.
	Charlotte County.		$		$		$		$		$		$		$		$		$		$	
1	Lepreau to Red Head	26950	53900													8176	8176	360	720			1
2	Red Head to L'Etang	35500	71000	10	100	25	50	10	100							4010	4010					2
3	L'Etang to St George	45165	90330			82	164	27	270			8	32			3860	3860					3
4	St. George to St. Stephen	62640	125280			118	236	24	240					390	1170	5685	5685					4
5	Grand Manan	40400	80800	120	1200											360	360	1200	2400			5
6	Campobello	780	1560	37	370							40	160			55	55			1600	4800	6
7	West Isles	59138	118276													2000	2000			150	150	7
	Totals	270573	541146	167	1670	225	450	61	610			48	192	390	1170	24146	24146	1560	3120	1750	5250	
	St. John County.																					
1	St. John Harbour	43000	86000							110	880											1
2	Lepreau to Chance Harbour	3000	6000																			2
3	Chance Harbour to St. John	19675	39350																			3
4	Mispec to Tynemouth Creek	42	84																			4
5	Tynemouth to Albert County																					5
	Totals	65717	131434							110	880											

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for Counties of **Charlotte** and **St. John**, Province of **New Brunswick**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintal.	Haddock, used fresh, cwt.	Haddock, canned, cases.	Haddock, dried, quintal.	Hake and cusk, used fresh, cwt.	Hake and cusk, dried, quintal.	Pollock, used fresh, cwt.	Pollock, dried, quintal.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Herring, used as fertilizer, brl.	Number.
	Charlotte County.																		
1	Lepreau to Red Head	.....	503	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
2	Red Head to L'Etang	.....	908	507	516	1057	40	4340	768	150	16484	..	333	400	....	.....	3000	1000	2
3	L'Etang to St. George	.....	313	1900	.....	605	1500	.....	....	1360	.....	900	600	.....	....	..	.....	....	3
4	St. George to St. Stephen	....	37	.....	.....	42	2100	.....	....	340	....	...	...	.....	850	..	.....	...	4
5	Grand Manan	.....	4020	310	.....	2130	2	.....	176	.....	10000	1235	1056	625	68000	510	7090	600	5
6	Campobello	.....	210	2500	.....	500	3870	.....	.....	...	11100	6000	4000	..	600	.....	60	....	6
7	West Isles	.....	600	....	.....	200	400	.....	.....	600	.....	3000	3000	.....	400	.. ..	.....	....	7
	Totals	$	6591	5217	516	4534	7912	4340	944	2450	37584	11135	8989	1025	69850	510	10060	1600	
	Rates	$	15	2	4	6.50	2.50	8	6	1	3.50	1	4	1	3	5	2	1	
	Values	$	98865	10434	2064	29471	19780	34720	5664	2150	131544	11135	35956	1025	209550	2550	20120	1600	
	St. John County.																		
1	St. John Harbour	540	500	....	..	.....	.....	.....	.....	.....	.....	.....	.....	1300	.....	....	...	....	1
2	Lepreau to Chance Harbour	310	755	420	.....	.....	50	.....	.. ..	..	1166	.....	.....	....	....	.....	.....	....	2
3	Chance Harbour to St John	1260	516	620	....	.....	24	....	.. ..	.....	1466	.. ..	....	....	.....	....	.. ..	....	3
4	Mispec to Tynemouth Creek	46	435	35	....	.....	.....	....	.....	.....	.....	.. ..	....	..	.. ..	.....	.. ..	.. ..	4
5	Tynemouth to Albert County	.....	435	.....	...	....	.....	.. ..	.....	.....	.....	.....	20	...	.....	....	.. ..	.....	5
	Totals	$ 2156	2641	1075	....	....	74	.....	.	.....	2632	.....	20	1300	...	.....	.. ..	.. ..	
	Rates	$ 15	15	2	...	.....	2.50	.....	....	.....	3.50	.....	4	1	.....	.....	.. ..	.. ..	
	Values	$ 32340	39615	2150	.....	.....	185	... .	. ..	....	9212	....	80	1300	....	....	....	... ..	

* Cwt. = 100 lb. † Quintal = 112 lb.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for Counties of **Charlotte** and **St. John**, Province of **New Brunswick**, during the year 1915-16.—*Concluded.*

Number.	Fishing Districts.	Herring, canned, cases.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Sardines, canned, cases.	Sardines, sold fresh or salted, brl.	Halibut, used fresh, cwt.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Eels, used fresh, cwt.	Squid, used as bait, brl.	Cockles, used fresh, cwt.	Clams and quahaugs, used fresh, brl.	Clams and quahaugs, canned, cases.	Dulse, dried, cwt.	Sounds, (Hake) dried, cwt.	Fish Oil, gal.	Scallops, shelled, gal.	Number.
	Charlotte County.																			
1	Lepreau to Red Head						26950							6240	1936	140				1
2	Red Head to L'Etang	4300	11			92500	17000	10	25	10				4010			170	12320		2
3	L'Etang to St. George						45165		82	27		8		3860				380		3
4	St. George to St. Stephen					25860	57468		118	24			390	2237	3448					4
5	Grand Manan						40100	120						360		600	130	10000		5
6	Campobello						780	37				40		55			120	8500	3200	6
7	West Isles					2000	58738							2000				3000	300	7
	Totals $	4300	11			120360	246501	167	225	61		48	390	18762	5384	740	420	34200	3500	
	Rates $	5	5			5	2	10	2	10		4	3	1	5	6	35	30c.	1.50	
	Values $	21500	55			601800	493002	1670	450	610		192	1170	18762	26920	4440	14700	10260	5250	
	St. John County.																			
1	St. John Harbour		1800	19500	11000		43000				110									1
2	Lepreau to Chance Harbour						3000													2
3	Chance Harbour to St. John		1480	1600			19675										19	1000		3
4	Mispec to Tynemouth Creek						42													4
5	Tynemouth to Albert County																			5
	Totals $		3280	21100	11000		65717				110						19	1000		
	Rates $		5	1	3.50		2				8						35	30c		
	Values $		16400	21100	38500		131434				880						665	300		

Total value, Charlotte county	$1,817,709
" St. John county	294,161

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in fresh, dried, pickled, canned, etc.. State, for District No. 1, Province of New Brunswick, during the year 1915-16.

Kinds of Fish.	Caught and landed in a Green State.		Marketed.		Total Marketed Value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Salmon.....cwt.	2,156	32,340			
" used fresh..... "			2,156		
					32,340
Lobsters..... "	9,232	138,480			
" shipped in shell..... "			9,232		
					138,480
Cod..... "	20,978	41,956			
" used fresh..... "			6,292	12,584	
" green-salted..... "			516	2,064	
" dried..... "			4,534	29,471	
					44,119
Haddock..... "	17,766	44,415			
" used fresh..... "			7,986	19,965	
" smoked (finnans)..... "			4,430	34,720	
" dried..... "			944	5,664	
					60,349
Hake..... "	123,102	123,102			
" used fresh..... "			2,450	2,450	
" dried..... "			40,216	140,756	
					143,206
Pollock..... "	38,165	38,165			
" used fresh..... "			11,135	11,135	
" dried..... "			9,009	36,036	
					47,171
Herring..... "	169,460	169,460			
" used fresh..... "			2,325	2,325	
" canned.....cases			4,300	21,500	
" smoked.....cwt.			69,850	209,550	
" pickled.....brl.			510	2,550	
" used as bait..... "			10,060	20,120	
" used as fertilizer..... "			1,600	1,600	
					257,645
Shad.....cwt.	3,291	16,455			
" used fresh..... "			3,291		
					16,455
Alewives..... "	54,100	54,100			
" used fresh..... "			21,100	21,100	
" salted.....brl.			11,000	38,500	
					59,600
Sardines..... "	336,290	672,580			
" canned.....cases			120,360	601,800	
" sold fresh or salted..... brl.			312,218	624,436	
					1,226,236
Halibut, used fresh.....cwt.	167	1,670	167		1,670
Flounders..... "	225	450	225		450
Smelts..... "	61	610	61		610
Eels..... "	110	880	110		880
Squid.....brl.	48	192	48		192
Cockles..... "	290	1,170	390		1,170

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State for District No. 1, Province of New Brunswick, during the year 1915-16—*Concluded.*

Kinds of Fish.	Caught and landed in a Green State.		Marketed.		Total. Marketed Value
	Quantity.	Value,	Quantity.	Value.	
		$		$	$
Clams ..... brl.	24,146	24,146	.....	.....	
" used fresh ..... "	.....	.....	18,762	18,762	
" canned ..... cases	.....	.....	5,384	26,920	
					45,682
Dulse ..... cwt.	1,560	3,120	.....	.....	
" dried ..... "	.....	.....	740	.....	
					4,440
Sounds (Hake) ..... "	.....	.....	439	.....	15,365
Scallops ..... brl.	1,750	5,250	.....	.....	
" shelled ..... gal.	.....	.....	3,500	.....	
					5,250
Fish Oil ..... "	.....	.....	35,200	.....	10,560
Totals	.....	1,368,541	.....	.....	2,111,870

RECAPITULATION.

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels Boats, Nets, etc., in District No. 1, Province of New Brunswick, for the year 1915-16.

——	Number.	Value.
		$
Sailing and gasoline vessels	104	126,100
Boats (sail)	1,700	41,799
" (gasoline)	942	211,755
Carrying smacks	61	47,900
Gill nets, seines, trap and smelt nets, etc	3,938	109,193
Weirs	548	492,500
Trawls	479	10,449
Hand lines	2,393	1,608
Lobster traps	34,582	34,583
Sardine canneries	5	349,000
Pile drivers and seine reels	576	35,460
Clam canneries	5	18,000
Freezers and ice-houses	21	158,200
Smoke and fish-houses	792	328,500
Fishing piers and wharves	336	175,200
Totals	.....	2,140,247

Number of men employed on vessels	296
" " boats	2,436
" " carrying smacks	129
" person employed in fish-houses, freezers, canneries, etc	1,104
Totals	3,965

DISTRICT NO. 2.

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in District No. 2, Province of New Brunswick, during the year 1915-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.																Fishing Gear.						Number.
		Steam Vessels.				Sailing and Gasoline Vessels.				Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.		Weirs.		Trawls		
		Number.	Tonnage.	Value.	Men.	(20 to 40 tons) No.	(10 to 20 tons.) Number.	Value.	Men.	Sail, and Row.	Value.	Gasoline.	Value.	Men.	Number	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	
	Restigouche County.			$				$			$		$			$			$		$		$	
1	Above Dalhousie						1	800	5	46	950	3	4500	62	3	350	6	1146	14620					1
2	Below Dalhousie						1	500	3	225	5850	10	3000	350	1	500	2	1485	22900					2
	Totals						2	1300	8	271	6800	13	7500	412	4	850	8	2631	37520					
	Gloucester County.																							
3	Beresford, etc									449	13000	5	2000	868				3700	26000			15	150	3
4	Bathurst and New Bandon									335	8000	1	2500	678				4160	27000			49	735	4
5	Caraquet, etc					9	147	79800	646	355	15000	5	5000	750				3200	21000			160	1300	5
6	Shippegan and Miscou Islands					7	73	56000	348	397	23060	5	1500	749				1865	14450			80	600	6
7	Tracadie, Inkerman, etc						31	39200	120	415	14200	15	11500	835				6200	49600			48	300	7
	Totals					16	251	175000	1114	1951	73260	37	22500	3880				19125	138050			352	3085	
	Northumberland County.																							
8	Chatham, Neguac, etc	1	16	2500	3		4	1100	12	460	12000	7	2800	715				8736	94220			5	60	8
9	Bay du Vin, etc						24	15000	68	250	4500	2	650	410				6200	87600					9
10	Southwest and Northwest Miramichi River									200	2800	2	1000	220				1760	11500					10
	Totals	1	16	2500	3		28	16100	80	910	19300	11	4450	1315				16696	193320			5	60	

	Kent County.																								
11	Richibucto, etc					14	5100	37	255	17400	31	9300	468				3610	31680			22	538	11
12	Buctouche, etc.					8	7500	16	590	22000	25	12500	1150	1	500	2	3000	30500					12
13	Dundas								377	14700	16	4800	786				1468	10670					13
	Totals					22	12600	53	1222	54100	72	26600	2404	1	500	2	8978	72850			22	538	
	Westmorland County.																								
14	Shediac, etc					1	500	3	520	20000	55	14000	949	2	800	4	3163	20120			150	1125	14
15	Botsford								200	10000	400	80000	1400				1715	14450	1	100			15
16	Sackville and Westmorland								220	5000	150	26250	800				2500	15000	1	100	100	500	16
17	Dorchester								31	3600			60				160	1800					17
	Totals					1	500	3	971	38600	605	120250	3209	2	800	4	7538	51370	2	200	250	1625	
18	*Albert County.*								15	400	2	600	34				200	800	2	600			18

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, used in the Fishing Industry in District No. 2, Province of New Brunswick, during the years 1915-16.—*Concluded.*

Number.	Fishing Districts.	Fishing Gear.				Canneries.				Other Material.						Persons employed in Canneries, Freezers and Fish-Houses.	Number.
		Hand lines.		Lobster traps.		Lobster canneries.		Clam canneries.		Freezers and Ice-Houses.		Smoke and Fish-Houses.		Fishing Piers and Wharves.			
		Number.	Value	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	Restigouche County.		$		$		$		$		$		$		$		
1	Above Dalhousie	20	10	.....	.....	....	.. ...	..	.....	3	16000	2	800	....	.....	30	1
2	Below Dalhousie	40	20	3800	4750	2	1900	....	.....	5	8506	4	2000	1	200	50	2
	Totals	60	30	3800	4750	2	1900	....	.....	8	24500	6	2800	1	200	80	
	Gloucester County.																
3	Beresford, etc	250	250	3600	4500	5	3500	....	....	6	4000	23	1600	...	.....	100	3
4	Bathurst and New Bandon	428	380	10850	13562	10	5400	..	.....	9	3600	.....	... ...	...	.....	220	4
5	Caraquet, etc	2250	2250	5260	6575	6	3000	....	.....	4	5000	30	8000	3	2500	475	5
6	Shippegan and Miscou Islands	1858	1530	26200	32750	42	23970	....	.	6	3300	27	8500	2	1800	760	6
7	Tracadie, Inkerman, etc	715	400	7428	9281	11	8400	1	5000	12	20000	55	5600	2	2100	450	7
	Totals	5501	4810	53338	66668	74	44270	1	5000	37	35900	135	23700	7	6400	2005	
	Northumberland County.																
8	Chatham, Neguac	80	80	11150	13937	12	9900	....	.....	24	16000	80	14160	...	.....	340	8
9	Bay du Vin, etc	52	26	7775	9719	4	6000	....	.....	12	13200	8	1000	....	.....	228	9
10	Southwest and Northwest Miramichi River	.....	.....	.....	.....	.	.....	...	.....	7	1800	28	700	..	.....	42	10
	Totals	132	106	18925	23656	16	15900	..		43	31000	116	15860	....	... ...	610	

	Kent County.																
11	Richibucto, etc	346	110	20650	25812	11	9000	....	....	21	18400	14	1250	15	7400	296	11
12	Buctouche, etc	350	200	12500	15625	10	6100	....	.....	8	7000	6	1500	3	1500	325	12
13	Dundas	200	100	9145	11431	7	5900	...	....	....	.....	.....	.....	....	.....	169	13
	Totals	896	410	42295	52868	28	21000	....	....	29	25400	20	2750	18	8900	790	
	Westmorland County.																
14	Shediac, etc	100	30	26900	33625	14	15900	....	....	8	18000	10	10000	....	.....	450	14
15	Botsford	200	200	36125	45156	17	19650	...	....	35	6000	110	24000	25	5000	900	15
16	Sackville and Westmorland	100	30	.....	.....	.....	.....	....	...	30	5000	100	23500	10	2000	700	16
17	Dorchester	.....	.....	.....	.....	.....	.....	....	.....	....	.....	15	300	2	500	30	17
	Totals	400	260	63025	78781	31	35550	....	.....	73	29000	235	57800	37	7500	2080	
18	*Albert County.*	.....	.....	200	250	.....	.....	...	....	....	.....	2	150	....	.....	2	18

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State, in District No. 2, Province of New Brunswick, during the year 1915-16.

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Number.
	Restigouche County.		$		$		$		$		$		$	
1	Above Dalhousie.	850	12750	....	....	100	150	....	....	.....	. ...	... .	.....	1
2	Below Dalhousie.....	1794	26910	877	4385	670	990	....	...	45	45	....	.....	2
	Totals.....	2644	39660	877	4385	760	1140	...	...	45	45	.....	....	
	Gloucester County.													
3	Beresford, etc	1068	16020	790	3950	5093	7640	...	...	.....	.....	.....	.....	3
4	Bathurst, New Bandon, etc.	870	13050	3395	16975	6200	9300	...	...	...	.....	.....	....	4
5	Caraquet, etc.....	.....	....	1362	6810	102090	153135	3600	3600	4500	4500	.. .	...	5
6	Shippegan and Miscou Islands.	....	. ....	12045	60225	49430	74145	470	470	1474	1474	. ..	....	6
7	Tracadie, Inkerman, etc	392	5880	2546	12730	51600	77450	..	....	. .	....	.....	.....	7
	Totals	2330	34950	20138	100690	214415	321670	4070	4070	5974	5974	.. .	.....	
	Northumberland County													
8	Chatham, Neguac, etc.	1510	22650	5113	25565	1558	2337	....	....	.	.....	.....	.....	8
9	Bay du Vin, etc. ..	6743	101145	5083	25415	2168	3252	...	. .	.....	.....	....	....	9
10	Northwest and Southwest Miramichi River	480	7200	.....	.....	....	.....	...	....	... .	.....	.....	. .	10
	Totals.....	8733	130995	10196	50980	3726	5589	....	....	.....	... .	. . .	....	
	Kent County.													
11	Richibucto, etc.....	638	9570	11289	56445	7554	11331	35	35	9451	9454	....	....	11
12	Buctouche, etc..... .	.. .	.....	4120	20600	1440	2160	600	600	662	662	.....	.....	12
13	Dundas.	.....	.....	2915	14575	120	180	..	....	....	.....	.....	.	13
	Totals.....	638	9570	18324	91620	9114	13671	635	635	10116	10116	....	.....	
	Westmorland County.													
14	Shediac, etc	580	8700	6163	30815	1100	1650	....	....	.....	.....	.. ...	.....	14
15	Botsford..... ..	...	....	7167	35835	150	225	...	....	.....	.....	.....	.....	15
16	Sackville and Westmorland.	15	225	....	....	50	75	....	....	....	....	.....	.....	16
17	Dorchester.....	36	540	.....	.....	120	180	....	....	. ...	.. ..	.....	.....	17
	Totals..	631	9465	13330	66650	1420	2130	....	..	.....	.....	...	. . .	
18	*Albert County.*	28	420	54	270	500	750	....	....	.....	.....	...	.....	18

* Cwt. = 100 pounds.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State, in District No. 2, Province of New Brunswick, during the year 1915-1916—*Continued.*

Number.	Fishing Districts.	Herring, cwt.*	Herring, value.	Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Number.
	Restigouche County		$		$		$		$		$		$	
1	Above Dalhousie	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1000	1500	1
2	Below Dalhousie	4285	2571	8	56	10	80	.....	.....	.....	.....	200	300	2
	Totals	4285	2571	8	56	10	80	.....	.....	.....	.....	1200	1800	
	Gloucester County.													
3	Beresford, etc	37100	22260	700	4900	.....	.....	.....	.....	.....	.....	60	90	3
4	Bathurst, New Bandon, etc.	16890	10134	70	490	.....	.....	.....	.....	50	400	.....	.....	4
5	Caraquet, etc	46140	27684	680	4760	.....	.....	.....	.....	100	800	40	60	5
6	Shippegan and Miscou Ids.	34310	20586	2069	14483	.....	.....	.....	.....	20	160	.....	.....	6
7	Tracadie, Inkerman, etc.	24200	14520	8350	58450	80	640	4200	2520	10	80	.....	.....	7
	Totals	158640	95184	11869	83083	80	640	4200	2520	180	1440	100	150	
	Northumberland County.													
8	Chatham, Neguac, etc.	10940	6540	150	1050	728	5824	1380	828	.....	.....	260	390	8
9	Bay du Vin, etc.	6500	3900	1400	9800	80	640	2100	1260	.....	.....	60	90	9
10	Northwest and Southwest Miramichi River.	.....	.....	.....	.....	1050	8400	850	510	.....	.....	.....	.....	10
	Totals	17400	10440	1550	10850	1858	14864	4330	2598	.....	.....	320	480	
	Kent County.													
11	Richibucto, etc.	33100	19860	5233	36631	89	712	3840	2304	.....	.....	426	639	11
12	Buctouche, etc	29610	17766	328	2296	.....	.....	4075	2445	.....	.....	146	219	12
13	Dundas	53360	32016	40	280	.....	.....	400	240	.....	.....	200	300	13
	Totals	116070	69642	5601	39207	89	712	8315	4989	.....	.....	772	1158	
	Westmorland County.													
14	Shediac, etc.	132100	79260	600	4200	66	528	200	120	.....	.....	140	210	14
15	Botsford	58000	34800	100	700	.....	.....	200	120	.....	.....	.....	.....	15
16	Sackville and Westmorland	26105	15663	10	70	141	1128	500	300	.....	.....	.....	.....	16
17	Dorchester	80	48	.....	.....	380	3040	.....	.....	.....	.....	.....	.....	17
	Totals	216285	129771	710	4970	587	4696	900	540	.....	.....	140	210	
18	*Albert County.*	50	36	10	70	30	240	.....	.....	.....	.....	10	15	18

* Cwt. = 100 pounds.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State, in District No. 2, Province of New Brunswick, during the year 1915-16—*Continued.*

Number.	Fishing Districts.	Smelts, cwt.*	Smelts, value.	Trout, cwt.	Trout, value.	Bass, cwt.	Bass, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Mixed fish, cwt.	Mixed fish, value.	Number.
	Restigouche County.		$		$		$		$		$		$	
1	Above Dalhousie	2520	15120	100	800	20	200	40	240	20	30	20	20	1
2	Below Dalhousie	240	1440	140	1120	10	100	55	330	30	45	100	100	2
	Totals	2760	16560	240	1920	30	300	95	570	50	75	120	120	
	Gloucester County.													
3	Beresford, etc.	20	120	30	240	12	120	20	120	40	60	....	....	3
4	Bathurst, New Bandon, etc.	285	1710	55	440	30	300	45	270	4600	6900	...	...	4
5	Caraquet, etc.	680	4080	20	160	20	200	40	240	300	450	..	...	5
6	Shippegan and Miscou Ids.	1550	9300	10	80	20	200	20	120	.....	..	....	....	6
7	Tracadie, Inkerman, etc.	3760	22560	120	960	240	2400	600	3600	50	75	200	200	7
	Totals	6295	37770	235	1880	322	3220	725	4350	4990	7485	200	200	
	Northumberland County.													
8	Chatham, Negnac, etc.	14964	89784	55	440	60	600	50	300	12280	18420	....	....	8
9	Bay du Vin, etc.	10214	61284	35	280	140	1400	40	240	280	420	...	...	9
10	Northwest and Southwest Miramichi River	80	480	1270	10160	315	3150	200	1200	.....	..	...	....	10
	Totals	25258	151548	1360	10880	515	5150	290	1740	12560	18840	....	....	
	Kent County.													
11	Richibucto, etc.	7089	42534	29	232	1471	14710	27	162	64	96	160	160	11
12	Buctouche, etc.	3338	20028	48	384	70	700	120	720	38	57	...	...	12
13	Dundas	2670	16020	40	320	40	400	35	210	100	140	50	50	13
	Totals	13097	78582	117	936	1581	15810	182	1092	202	303	210	210	
	Westmorland County.													
14	Shediac, etc.	2730	16380	60	480	60	600	50	300	190	285	100	100	14
15	Botsford	2450	14700	100	800	20	200	20	120	.....	.....	....	....	15
16	Sackville and Westmorland.	310	1860	15	120	20	200	25	150	20	30	....	....	16
17	Dorchester.	.....	.....	30	240	....	... .	40	240	50	75	...	....	17
	Totals	5490	32940	205	1640	100	1000	135	810	260	390	100	100	
18	*Albert County.*	.....	.....	80	640	10	100	50	300	20	30	....	...	18

* Cwt. = 100 pounds.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State, in District No. 2, Province of New Brunswick, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Squid, brl.*	Squid, value.	Oysters, brl.	Oysters, value.	Clams, brl.	Clams, value.	Quahaugs, brl.	Quahaugs, value.	Dulse, crabs, cockles, etc., cwt.	Dulse, crabs, cockles, etc., value.	Seals, No.	Seals, value.	Number.
	Restigouche County,		$		$		$		$		$		$	
1	Above Dalhousie					15	30							1
2	Below Dalhousie					25	50							2
	Totals					40	80							
	Gloucester County.													
3	Beresford, etc					320	640							3
4	Bathurst, New Bandon, etc.			50	250	80	160							4
5	Caraquet, etc	100	100	600	3000	700	1400	200	400					5
6	Shippegan and Miscou Ids.			10	50	400	800							6
7	Tracadie, Inkerman, etc					5800	11600							7
	Totals	100	100	660	3300	7300	14600	200	400					
	Northumberland County.													
8	Chatham, Neguac, etc.			1115	5575	1510	3020					21	63	8
9	Bay du Vin, etc.			2859	14295							2	6	9
10	Northwest and Southwest Miramichi River					25	50							10
	Totals			3974	19870	1535	3070					23	69	
	Kent County.													
11	Richibucto, etc.			434	2170	25	50			30	30			11
12	Buctouche, etc.			3523	17615			1533	3066					12
13	Dundas			1917	9585			1750	3500					13
	Totals			5874	29370	25	50	3283	6566	30	30			
	Westmorland County.													
14	Shediac, etc			1950	9750	80	160	1200	2400					14
15	Botsford			40	200	30	60	55	110					15
16	Sackville and Westmorland.					28	56							16
17	Dorchester.					30	60							17
	Totals			1990	9950	168	336	1255	2510					
18	*Albert County.*					30	60							

* Cwt. = 100 pounds.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State for District No. 2, Province of New Brunswick, during the year 1915-1916.

Number.	Fishing Districts.	Salmon, used fresh and frozen, cwt.*	Lobsters, canned, cases.	Lobsters shipped in shell cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †Quintals.	Haddock, dried, quintals.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, dried, quintals.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Herring, used as fertilizer, brl.	Mackerel, used fresh, brl.	Mackerel, salted, brl.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Alewives, salted, brls.	Number.
	Restigouche County.																				
1	Above Dalhousie	850	....	....	100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
2	Below Dalhousie	1794	391	94	140	40	146	....	25	7	135	617	300	300	708	8	....	10	....	....	2
	Totals	2644	391	94	240	40	146	....	25	7	135	617	300	300	708	8	....	10	....	....	
	Rates $	15	20	5	2	3	5	....	2	3	2	2	4	1.50	50c.	10	....	10	....	....	
	Values $	39660	7820	470	480	120	730	....	50	21	270	1238	1200	450	354	80	....	100	....	....	
	Gloucester County.																				
3	Beresford, etc	1068	34	721	1010	1200	561	....	....	....	200	....	700	100	17300	700	....	....	....	....	3
4	Bathurst, New Bandon, etc	870	1686	25	600	1200	1067	....	....	....	1200	....	600	1900	5045	70	....	....	....	....	4
5	Caraquet, etc	....	671	20	200	5000	30630	1200	....	1500	500	....	3900	2280	14690	680	....	....	....	....	5
6	Shippegan and Miscou Island	....	6002	40	130	5435	12810	157	....	491	100	....	1900	4400	9855	2030	13	....	....	....	6
7	Tracadie, Inkerman, etc	392	1258	20	200	1200	16333	....	....	....	200	....	1000	1500	9000	8350	....	80	120	1360	7
	Totals	2330	9651	836	2140	14035	61401	1357	....	1991	2200	....	8100	10180	55590	11830	13	80	120	1360	
	Rates $	15	20	5	2	3	5	3	....	3	2	....	4	1.50	50c.	10	12	10	2	3	
	Values $	34950	193020	4180	4280	42105	307005	4071	....	5973	4400	....	32400	15270	27945	118300	156	800	240	4080	

	Northumberland County.																				
8	Chatham, Neguac, etc.....	1510	2547	19	96	86	430	.....	.....	.....	145	30	763	1930	2273	150	.....	728	30	450	8
9	Bay du Vin, etc	6743	2526	31	46	1061	.....	.....	.....	.....	100	...	400	1000	1600	1313	29	80	300	600	9
10	Southwest and Northwest Miramichi River.....	480	.....	.....	....	.....	....	.....	.....	...	...	....	....	.....	.....	....	...	1050	100	250	10
	Totals	8733	5073	50	142	1147	430	....	....	.....	245	30	1163	2930	3873	1463	29	1858	430	1300	
	Rates ..... $	15	20	5	2	3	5	.....	....	....	2	2	4	1.50	50c.	10	12	10	2	3	
	Values..... ..... $	130995	101460	250	284	3441	2150	.....	....	....	490	60	4652	4395	1936	14630	348	18580	860	3900	

*Cwt. = 100 lbs. †Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 2, Province of New Brunswick, during the year 1915-1916---*Continued.*

Number.	Fishing Districts.	Halibut, used fresh, cwt.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Bass, used fresh, cwt.	Eels, used fresh, cwt.	Tom-cod, used fresh, cwt.	Mixed Fish, used fresh, cwt.	Squids, used as bait, cwt.	Oysters, used fresh, brl.	Clams and Quahaugs used fresh, brl.	Clams and Quahaugs, canned cases.	Hair Seal Skins.	Fish Oil, gal.	Total Value per Fishing District.	Number.
	Restigouche County.																
1	Above Dalhousie		1000	2520	100	20	40	20	20			15					1
2	Below Dalhousie		200	240	140	10	55	30	100			25			60		2
	Totals		1200	2760	240	30	95	50	120			40			60		
	Rates	$	2	10	10	12	8	2	1			3			30c.		
	Values	$	2400	27600	2400	360	760	100	120			120			18		
	Total value															86,917	
	Gloucester County.																
3	Beresford, etc		60	20	30	12	20	40				320			500		3
4	Bathurst, New Bandon, etc	50		285	55	30	45	4600			50	80			2500		4
5	Caraquet, etc	100	40	680	20	20	40	300		100	600	900			32050		5
6	Shippegan and Miscou Island	20		1550	10	20	20				10	400			10800		6
7	Tracadie, Inkerman; etc	10		3760	120	240	600	50	200				5800		5000		7
	Totals	180	100	9295	235	322	725	4990	200	100	660	1700	5800		49850		
	Rates	10	2	10	10	12	8	2	1	1	6	3	5		30c.		
	Values	1800	200	62950	2350	3864	5800	9980	200	100	3960	5100	29000		14955		
	Total value															967,504	

	Northumberland County.																
8	Chatham	....	260	14964	55	60	50	12280	.....	.....	1115	20	1490	21	250		8
9	Baie in Vin, etc	.....	60	10214	35	140	40	280	.....	.....	2859	.....	.....	2	....		9
10	Southwest and Northwest Miramichi River	....	....	80	1270	315	200	.....	.....	....	.....	25	.....	...	.....		10
	Totals	.....	320	25258	1360	515	290	12560	.....	.....	3974	45	1490	23	250		
	Rates $	.....	2	10	10	12	8	2	....	.....	6	3	5	3	30c.		
	Values $	....	640	252580	13600	6180	2320	25120	.....	.....	23844	135	7450	69	75		
	Total value	.....	.....	....	.....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	620,444	

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 2, Province of New Brunswick, during the year 1915-16—*Continued.*

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintals.	Haddock, used fresh, cwt.	Haddock, dried, quintals.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, dried, cwt.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brl.	Herring, used as bait, brl	Herring, used as fertilizer, brl.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Shad, used fresh, cwt.	Shad, salted, brl.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Number.
	Kent County.																						
11	Richibucto, etc	638	5345	600	3090	600	1088	35	....	....	3151	6350	.....	1970	2300	8120	5200	11	74	5	40	1267	11
12	Buctouche, etc	....	1976	168	540	300	100	.....	200	212	150	5858	500	2800	2300	4876	328	...	....	...	1000	1025	12
13	Dundas	.. .	1442	30	120	.....	.....	.. ..	.....	...	....	100	.....	2080	1600	21910	40	.....	....	...	40	120	13
	Totals	638	8763	798	3750	900	1188	35	200	212	3301	12308	500	6850	6200	34906	5568	11	74	5	1080	2412	
	Rates	15	20	5	2	3	5	2	3	2	3	2	2	4	1.50	50c.	10	12	10	15	2	3	
	Values	9570	175260	3990	7500	2700	5940	70	600	424	9903	24616	1000	27400	9300	17453	55680	132	740	75	2160	7236	
	Westmorland County.																						
14	Shediac, etc	580	2841	480	500	300	.....	...	.....	.....	...	2300	10000	2600	10000	41000	600	.....	66	....	200	...	14
15	Botsford	....	3510	148	150	....	.....	...	.....	.....	...	400	14000	1200	9000	4000	25	25	...	..	50	50	15
16	Sackville and Westmorland.	15	... ...	....	50	.....	...	.....	.....	.....	.....	1100	10000	335	1000	1000	10	....	101	10	200	100	16
17	Dorchester	36	.....	....	120	.....	.....	...	.....	... ..	. .	80	...	..	....	....	.....	...	210	60	....	....	17
	Totals	631	6351	628	820	300	.....	....	.....	....	....	3880	34000	4135	20000	46000	635	25	377	70	450	150	
	Rates	15	20	5	2	3	...	.	.....	.....	. . .	2	2	4	1.50	50c.	10	12	10	15	2	3	
	Values	9465	127020	3140	1640	900	.....	. ....	... .	.....	... .	7760	68000	16540	30000	23000	6350	300	3770	1050	900	450	

*Cwt = 100 pounds. †Quintal = 112 pounds.

18	*Albert County.*																														18
	Albert County.....	28	.....	54	500	.....	.....	.....	.....	.....	.....	20	.....	.....	10	5	10	.....	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Rates	% 15	..	5	2	.....	..	.....	.....	.....	.....	2	.....	.....	1.50	50c.	10	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Values.....	$ 420	..	270	1000	.....	.....	.....	.....	.....	.....	40	.....	.....	15	2	100	....	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for **District No. 2**, Province of **New Brunswick**, during the year 1915-16—*Concluded*.

Number.	Fishing Districts.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Bass, used fresh, cwt.	Eels, used fresh, cwt.	Tom-cod, used fresh, cwt.	Mixed Fish, used fresh, cwt.	Oysters, used fresh, brl.	Clams and Quahaugs, used fresh, brl.	Dulse, Crabs, Cockles and other shell fish, used fresh, cwt.	Tongues and Sounds, pickled or dried, cwt.	Fish Oil, gal.	Total Value per Fishing District.	Number.
	Kent County.													$	
11	Richibucto, etc	426	7089	29	1471	27	64	160	434	25	30	22	860		11
12	Buctouche, etc	146	3338	48	70	120	38	.....	3525	1533	.. ...	.....	....		12
13	Dundas	200	2670	40	40	35	100	50	1917	1750	..	.....	..		13
	Totals	772	13097	117	1581	182	202	210	5874	3308	30	22	860		
	Rates $	2	10	10	12	8	2	1	6	3	1.50	5	30c.		
	Values $	1544	130970	1170	18972	1456	404	210	35244	9924	45	110	258		
	Total value	.....	.....	....	. . .	.....	.....	...	...	.. ..	.....	....	.....	562,056	
	Westmorland County.														
14	Shediac, etc	140	2730	60	60	50	190	100	1950	1280	...	.....	200		14
15	Botsford	.....	2450	100	20	20	....	.....	40	85	... .	.....	....		15
16	Sackville and Westmorland	. ...	310	15	20	25	20	...	. ..	28	.....	.....	....		16
17	Dorchester	....	.....	30	. ...	40	50	.. ...	.. ...	30	. .	.....	.....		17
	Totals	140	5490	205	100	135	260	100	1990	1890	.....	.. .	200		
	Rates $	2	10	10	12	8	2	1	6	3	....	.....	30c.		
	Values $	280	54900	2050	1200	1080	520	100	11940	4269	.....	.....	60		
	Total value	.....	.....	.. .	.....	.....	. ..	..	.....	.....	.....	.....	. .	376,684	

| 18 Albert County | | |

RECAPITULATION

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, etc,, State for District No. 2, Province of New Brunswick, during the year 1915-16.

Kinds of Fish.		Caught and Landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	$
Salmon	cwt.	15,004	225,060			
" used fresh	"			15,004		225,060
Lobsters	"	62,919	314,595			
" canned	cases.			30,229	604,580	
" shipped in shell	cwt.			2,460	12,300	
						616,880
Cod	"	229,935	344,950			
" used fresh	"			7,592	15,184	
" green—salted	"			16,422	49,266	
" dried	"			63,165	315,825	
						380,275
Haddock	"	4,705	4,705			
" used fresh	"			35	70	
" dried	"			1,557	4,671	
						4,741
Hake	"	16,135	16,135			
" used fresh	"			237	474	
" dried	"			5,299	15,897	16,371
Herring	"	512,730	307,644			
" used fresh	"			18,788	37,576	
" smoked	"			35,147	70,294	
" pickled	brls.			20,548	82,192	
" used as bait	"			39,620	59,430	
" used as fertilizer	"			141,382	70,691	
						320,183
Mackerel	cwt.	19,748	138,236			
" used fresh	"			19,514	195,140	
" salted	brls.			78	936	
						196,076
Shad	cwt.	2,654	21,232			
" used fresh	"			2,429	24,290	
" salted	brls.			75	1,125	
						25,415
Alewives	cwt.	17,745	10,647			
" used fresh	"			2,080	4,160	
" salted	brls.			5,222	15,666	
						19,826
Halibut, used fresh	cwt.	180	1,440	180		1,800
Flonnders	"	2,542	3,813	2,542		5,084
Smelts	"	52,900	317,400	52,900		529,000
Trout	"	2,237	17,896	2,237		22,370
Bass	"	2,558	25,580	2,558		30,696
Eels	"	1,477	8,862	1,477		11,816
Tom-cod	"	18,082	27,123	18,082		36,164
Mixed Fish	"	630	630	630		630
Squid	brls.	100	100	100		100
Oysters	"	12,498	62,490	12,498		74,988
Clams and Quahaugs	"	13,836	27,672			
" used fresh	"			6,546	19,638	
" canned	cases.			7,290	36,450	
						56,088
Dulse, Cockles and other shell fish	cwt.	30	30	30		45
Tongues and Sounds	"			22		110
Hair Seals	No.	23	69			
Hair Seal Skins	"			23		69
Fish Oil	gals.			51,220		15,366
Totals			1,876,309			2,589,153

RECAPITULATION

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in District No. 2, Province of New Brunswick, for the year 1915–16.

—	Number.	Value.
		$
Steam fishing vessels (tonnage 16)	1	2,500
Sailing and gasoline vessels	320	205,500
Boats (sail)	5,340	192,460
" (gasoline)	740	181,900
Carrying smacks	7	2,150
Gill nets, seines, trap and smelt nets, etc.	54,268	493,910
Weirs	4	800
Trawls	629	5,308
Hand lines	6,989	5,616
Lobster traps	181,583	226,973
" canneries	151	118,620
Clam "	1	5,000
Freezers and ice-houses	190	145,800
Smoke and fish-houses	514	103,060
Fishing piers and wharves	63	23,000
		1,712,597

Number of men employed on vessels	1,258
" " boats	11,284
" " carrying smacks	14
" persons employed in fish-houses, freezers, canneries, etc	5,567
Total	18,123

DISTRICT No. 3 (INLAND).

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material used in the Fishing Industry in the Counties of **Kings, Queens, Sunbury, York, Carleton, Victoria and Madawaska**, Province of **New Brunswick**, during the year 1915-16.

Number.	Fishing Districts.	Boats.					Gill Nets.		Eel Traps.		Rods and Lines.		Freezers and Ice-houses.		Smoke and Fish-houses.		Number.
		Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	
	County of Kings.		$		$			$		$		$		$		$	
1	St. John River District	40	800	3	600	65	90	1,800	.....	.....	50	100	.....	.....	10	100	1
2	Kennebecasis River District	30	300	4	800	30	120	960	100	200	375	550	.....	.....	25	250	2
3	Belle Isle Bay District	30	450	2	450	60	70	700	.....	.....	75	150	.....	.....	10	100	3
	Totals	100	1,550	9	1,850	155	280	3,460	100	200	500	800	.....	.....	45	450	
	County of Queens.																
4	North of the St. John River	50	500	5	750	100	275	2,200	65	130	100	250	.....	.....	30	240	4
5	St. John River and South	90	1,080	6	1,325	125	180	2,165	.....	.....	60	150	.....	.....	15	150	5
	Totals	140	1,580	11	2,075	225	455	4,365	65	130	160	400	.....	.....	45	390	
6	*County of Sunbury*, (all)	40	600	3	750	50	550	4,600	5	10	60	200	.....	.....	15	250	6
	County of York.																
7	St. John River District	132	1,320	.....	.....	132	132	1,980	.....	.....	100	200	.....	.....	.....	.....	7
8	St. Croix, Magaguadavic, and Oromocto waters	92	1,380	17	6,950	130	.....	.....	.....	.....	600	1,200	19	1,900	.....	.....	8
9	Southwest Miramichi River	25	250	.....	.....	128	30	180	.....	.....	150	300	.....	.....	.....	.....	9
	Totals	249	2,950	17	6,950	390	162	2,160	.....	.....	850	1,700	19	1,900	.....	.....	
	County of Carleton.																
10	St. John River and West	60	600	.....	.....	65	75	90	.....	.....	100	200	.....	.....	.....	.....	10
11	East of the St. John River	15	180	.....	.....	15	.....	.....	.....	.....	75	300	.....	.....	.....	.....	11
	Totals	75	780	.....	.....	80	75	900	.....	.....	175	500	.....	.....	.....	.....	

	County of Victoria.																
12	St. John River District	10	100			15	7	70			40	100					12
13	Tobique River and Lakes	30	600			30					75	700	5	500			13
	Totals	40	700			45	7	70			115	800					
	County of Madawaska.																
14	Madawaska River and East	145	1,000			210					400	420					14
15	West of Madawaska River	80	700			130					140	180					15
	Totals	225	1,700			340					540	600					

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and marketed or consumed locally for the Counties of Kings, Queens, Sunbury, York, Carleton, Victoria and Madawaska, Province of New Brunswick, during the year 1915-16.

Number.	Fishing Districts.	Salmon, cwt.	Salmon, value.	Trout, cwt.	Trout, value.	Whitefish, cwt.	Whitefish, value.	Bass, cwt.	Bass, value.	Pickerel, cwt.	Pickerel, value.	Alewives, cwt.	Alewives, value.	Sturgeon, cwt.	Sturgeon, value.	Eels, cwt.	Eels, value.	Perch, cwt.	Perch, value.	Shad, salted, brl.	Shad, salted, value.	Shad, fresh, cwt.	Shad, fresh, value.	†Mixed fish, cwt.	†Mixed fish, value.	Caviare, cwt.	Caviare, value.	Number.
	County of Kings.		$		$		$		$		$		$		$		$		$		$		$		$		$	
1	St. John River District	175	2625	20	200	..	....	.	....	....	....	35	70	80	850	..	....	....	....	....	....	80	400	20	20	1 2/100	120	1
2	Kennebecasis River District	5	75	60	600	.. ..	....	..	....	20	200	100	200	....	....	75	375	....	..	....	..	320	1600	30	30	....	....	2
3	Belle Isle Bay District	10	150	10	100	....	....	25	250	10	100	125	250	....	....	....	..	....	....	10	150	....	....	20	20	..	....	3
	Totals	190	2850	90	900	....	....	25	250	30	300	260	520	80	800	75	375	....	....	10	150	400	2000	70	70	1 2/100	120	
	County of Queens.																											
4	North of St. John River	10	150	15	150	....	....	6	60	40	400	300	600	....	....	25	125	....	....	8	125	225	1125	25	25	....	....	4
5	South of St. John River	12	180	10	100	....	....	....	....	80	800	700	1400	....	....	..	....	....	..	7	100	383	1915	25	25	....	....	5
	Totals	22	330	25	250	....	....	6	60	120	1200	1000	2000	..	....	25	125	....	....	15	225	608	3040	50	50	....	..	
6	*Sunbury County* (all)	35	525	16	160	....	....	....	....	90	900	1500	3000	7	70	8	40	....	....	10	150	60	300	50	50	3/100	30	6
	York County.																											
7	St. John River District	251	3765	120	1200	....	.	. .	....	....	....	20	40	....	....	....	....	....	....	....	....	195	975	10	10	....	....	7
8	St. Croix, Magaguadavic and Oromocto Waters	40	600	100	1000	....	..	10	100	15	150	12	24	....	....	....	....	12	48	....	....	. .	....	10	10	....	....	8
9	Southwest Miramichi River	50	750	40	400	....	....	....	....	....	....	50	100	....	....	....	..	..	....	....	....	....	....	....	....	....	....	9
	Totals	311	5115	260	2600	....	....	10	100	15	150	82	164	.	....	....	....	12	48	....	....	195	975	20	20	....	....	
	Carleton County.																											
10	St. John River West	52	780	12	120	....	....	....	..	....	....	....	. .	....	....	....	....	..	....	....	....	15	75	10	10	....	....	10
11	East of St. John River	15	225	22	220	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	5	5	....	....	11
	Totals	67	1005	34	340	....	....	....	....	..	....	..	....	....	....	....	....	....	....	....	....	15	75	15	15	....	....	

	Victoria County.																														
12	St. John River District	5	75	25	250	4	60	....	....	....	....	....	.. .	....	...	15	75	....	....	. ..	....	39	195	5	5	....	....	12
13	Tobique River and Lakes	35	525	50	500	3	45	....	....	....	....	....	....	....	....	...	....	....	....	....	....	....	....	10	10	...	. .	13
	Totals	40	600	75	750	7	105	...	....	...	....	....	....	....	....	15	75	....	....	....	..	39	195	15	15	....	....	
	Madawaska County.																														
14	Madawaska River and East	12	180	150	1500	....	...	....	....	....	....	....	....	....	...	....	...	....	....	....	....	....	....	100	100	. ..	...	14
15	West of Madawaska River	....	....	60	600	35	525	....	...	...	....	...	....	....	...	....	....	..	....	....	....	...	....	30	30	....	....	15
	Totals	12	180	210	2100	35	525	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	130	130	....	....	

Cwt. – 100 lb. † "Mixed Fish" includes catfish, greyling, bull-heads, goldeyes and ouananiche.

RECAPITULATION.

Of the Yield and Value of the Fisheries in District No. 3, Province of New Brunswick, during the year 1915-1916.

Kinds of Fish.		Quantity.	Value.
			$
Salmon	*Cwt.	707	10,605
Trout	"	710	7,100
Whitefish	"	42	630
Bass	"	41	410
Pickerel	"	255	2,550
Sturgeon	"	87	870
Eels	"	123	615
Perch	"	12	48
Alewives	"	2,842	5,684
Shad, salted	Brls.	35	525
Shad, fresh	Cwt.	1,317	6,585
Mixed Fish	"	350	350
Caviare	"	1½	150
Total			36,122

Quantity consumed in Canada 6,017
" exported to U.S.A 575½

* Cwt. = 100 lbs.

RECAPITULATION.

Of the Number and Value of Vessels, Boats, Nets, Traps, etc., used in the Fisheries in District No. 3, Province of New Brunswick, during the year 1915-1916.

	Number.	Value.
		$
Boats (sail)	869	9,860
" (gasoline)	40	11,625
Gill-nets	1,529	15,555
Eel traps	170	340
Rods and lines	2,400	5,000
Freezers and Ice-houses	24	2,400
Smoke and Fish-houses	105	1,090
Lodges built and used by native and foreign sport fishermen	55	60,000
		105,870

Number of men employed on Boats 1,285

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a dried, pickled, canned, etc., State, for the whole of New Brunswick, during the year 1915-16.

Kinds of Fish.	Sea Fisheries.				Inland Fisheries.		Both Fisheries.		Total Marketed Value.
	Caught and landed.		Marketed.		Caught and marketed.		Total Marketed.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
		$		$		$		$	$
Salmon ..... cwt.	17160	257400	.....	.....	.....	.....	.....	.....	
" used fresh.. "	.....	.....	17160	257400	707	10605	17867	.....	268005
Lobsters..... "	72151	453075	.....	.....	.....	.....	.....	.....	
" canned ... cases.	.....	.....	30229	604580	.....	.....	30229	604580	
" ship. in shell, cwt.	.....	.....	11692	150780	.....	.....	11692	150780	755360
Cod .... "	250913	386906	.....	.....	.....	.....	.....	.....	
" used fresh .... "	.....	.....	13884	27768	.....	.....	13884	27768	
" green salted... "	.....	.....	16938	51330	.....	.....	16938	51330	
" dried..... "	.....	.....	67699	345296	.....	.....	67699	345296	424394
Haddock..... "	22471	49120	.....	.....	.....	.....	.....	.....	
" used fresh "	.....	.....	8021	20035	.....	.....	8021	20035	
" smoked... "	.....	.....	4340	34720	.....	.....	4340	34720	
" dried..... "	.....	.....	2501	10335	.....	.....	2501	10335	65090
Hake and Cusk... "	139237	139237	.....	.....	.....	.....	.....	.....	
" used fresh "	.....	.....	2687	2924	.....	.....	2687	2924	
" dried.... "	.....	.....	45515	156653	.....	.....	45515	156653	159577
Pollock..... .... "	38165	38165	.....	.....	.....	.....	.....	.....	
" used fresh. "	.....	.....	11135	11135	.....	.....	11135	11135	
" dried.... "	.....	.....	9009	36036	.....	.....	9009	36036	47171
Herring ... . "	682190	477104	.....	.....	.....	.....	.....	.....	
" used fresh "	.....	.....	21113	39901	.....	.....	21113	39901	
" canned ... cases.	.....	.....	4300	21500	.....	.....	4300	21500	
" smoked... cwt.	.....	.....	104997	279844	.....	.....	104997	279844	
" pickled ... brl.	.....	.....	21058	84742	.....	.....	21058	84742	
" used as bait. "	.....	.....	49680	79550	.....	.....	49680	79550	
" used as fertil. "	.....	.....	142982	72291	.....	.....	142982	72291	577828
Mackerel... .... "	19748	133236	.....	.....	.....	.....	.....	.....	
" used fresh "	.....	.....	19514	195140	.....	.....	19514	195140	
" salted.... brl.	.....	.....	78	936	.....	.....	78	936	196076
Shad..... cwt.	5945	37687	.....	.....	.....	.....	.....	.....	
" used fresh.. "	.....	.....	5720	40745	1317	6585	7037	47330	
" salted..... brl.	.....	.....	75	1125	35	525	110	1650	48980
Alewives... ..... cwt.	71845	64747	.....	.....	.....	.....	.....	.....	
" used fresh "	.....	.....	23180	25260	2842	5684	26022	30944	
" salted.... brl.	.....	.....	16222	54166	.....	.....	16222	54166	85110
Sardines..... "	336290	672580	.....	.....	.....	.....	.....	.....	
" canned... cases.	.....	.....	120360	601800	.....	.....	120360	601800	
" sold fresh or salted brl.	.....	.....	312218	624436	.....	.....	312218	624436	1226236
Halibut used fresh cwt.	347	3110	347	3470	.....	.....	347	.....	3470
Flounders..... "	2767	4263	2767	5534	.....	.....	2767	.....	5534

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for the whole of New Brunswick, during the year 1915-16—*Concluded.*

Kinds of Fish.	Sea Fisheries.				Inland Fisheries.		Both Fisheries.		Total Marketed Value.
	Caught and landed.		Marketed.		Caught and marketed.		Total Marketed.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
		$		$		$		$	$
Skate..... cwt.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Smelts..... "	52961	318010	52961	529610	.....	.....	52961	.....	529610
Tom-cod..... "	18082	27123	18082	36164	.....	.....	18082	.....	36164
Trout..... "	2237	17896	2237	22370	710	7100	2947	.....	29470
Sturgeon..... "	.....	.....	.....	.....	87	870	87	.....	870
Bass..... "	2558	25580	2558	30696	41	410	2599	.....	31106
Eels..... "	1587	9742	1587	12696	123	615	1710	.....	13311
Whitefish..... "	.....	.....	.....	.....	42	630	42	.....	630
Pickerel..... "	.....	.....	.....	.....	255	2550	255	.....	2550
Perch..... "	.....	.....	.....	.....	12	48	12	.....	48
Mixed fish..... "	630	630	630	630	350	350	980	.....	980
Squid..... brl.	148	292	148	292	.....	.....	148	.....	292
Oysters..... "	12498	62490	12498	74988	.....	.....	12498	.....	74988
Clams & Quahaugs "	37982	51818	.....	.....	.....	.....	.....	.....	.....
Clams & Quahaugs used fresh..... "	.....	.....	25308	38400	.....	.....	25308	38400	
Clams & Quahaugs canned..... cases.	.....	.....	12674	63370	.....	.....	12674	63370	101770
Scallops..... brl.	1750	5250	.....	.....	.....	.....	.....	.....	.....
" shelled... gals.	.....	.....	3500	5250	.....	.....	3500	.....	5250
Dulse, Cockles, etc. cwt.	1980	4320	1160	5655	.....	.....	1160	.....	5655
Tongues & sounds. "	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hake sounds..... "	.....	.....	461	15475	.....	.....	461	.....	15475
Caviare..... "	.....	.....	.....	.....	1½	150	1½	.....	150
Fish Oil..... gals.	.....	.....	86420	25926	.....	.....	86420	.....	25926
Hair Seals..... No.	23	69	.....	.....	.....	.....	.....	.....	.....
Hair Seal skins... "	.....	.....	23	69	.....	.....	23	.....	69
Totals.....	.....	3244850	.....	4701023	.....	36122	.....	.....	4737145

RECAPITULATION.

Of the number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in the province of New Brunswick, for the year 1915-16.

	Sea Fisheries.		Inland Fisheries.		Total, both Fisheries.	
	Number.	Value.	Number.	Value.	Number.	Value.
		$		$		$
Steam fishing vessels (tonnage 16)	1	2,500			1	2,500
Sailing and gasoline vessels	424	331,600			424	331,600
Boats (sail and row)	7,040	234,259	869	9,860	7,909	244,119
" (gasoline)	1,682	393,655	40	11,625	1,722	405,280
Carrying smacks	68	50,050			68	50,050
Gill nets, seines, trap and smelt nets, etc.	58,206	603,103	1,529	15,555	59,735	618,658
Weirs	552	493,300			552	493,300
Trawls	1,108	15,757			1,108	15,757
Hand lines	9,382	7,224			9,382	7,224
Eel traps			170	340	170	340
Rods and lines			2,400	5,000	2,400	5,000
Lobster traps	216,166	261,556			216,166	261,556
" canneries	151	118,620			151	118,620
Sardine "	5	349,000			5	349,000
Clam "	6	23,000			6	23,000
Freezers and ice-houses	211	304,000	24	2,400	235	306,400
Smoke and fish-houses	1,306	431,560	105	1,090	1,411	432,650
Fishing piers and wharves	399	198,200			399	198,200
Pile drivers and scows	576	35,460			576	35,460
Lodges used by fishermen			55	60,000	55	60,000
Totals		3,852,844		105,870		3,958,714

	Sea Fisheries.	Inland Fisheries.	Both Fisheries.
Number of men employed on vessels	1,554		1,554
" " boats	13,720	1,285	15,005
" " carrying smacks	143		143
Number of persons employed in fish-houses, freezers, canneries, etc	6,671		6,671
Totals	22,088	1,285	23,373

APPENDIX 2.

PRINCE EDWARD ISLAND.

REPORT ON THE FISHERIES OF THE PROVINCE.

To the Superintendent of Fisheries,
Ottawa.

Sir,—I have the honour to submit my annual report of the fisheries of the Province of Prince Edward Island for the year 1915-16, with tabulated returns showing the quantity and value of each kind of fish taken.

I regret to report a decrease in the value of fish taken in 1915-16, from the year 1914-15, of $328,116, principally owing to the decrease in the value of Lobsters.

Cod.

I have much pleasure in reporting a large increase in quantity taken of nearly one hundred per cent. Fishermen who followed this fishing were well remunerated.

Lobsters.

Owing to the ice remaining on the northern part of the island very little fishing was done before the 10th of May and in other sections not before the 20th, which made a very short season. Bait was scarce which was another great drawback. When bait was secured, large catches were taken, and help being scarce, several packers refused to take the fish except every second day. Notwithstanding all the difficulties fishermen and packers had to contend with, nearly as many lobsters were taken as in the season of 1914.

Haddock.

Few were taken, and they were mostly consumed fresh.

Hake.

The catch was much better than last season's.

Herring.

Most of the herring taken is used for lobster bait, and is of poor quality. The catch was unusually short owing to the fish passing before the ice left the coast; and bait had to be imported.

Smelts.

I regret to report the smallest catch for years. Fishermen claim it was because the ice formed so late, and was not heavy enough to prevent the fish from spreading on the flats (where bag nets could not be used), instead of following the channel as they generally do.

OYSTERS.

I regret having to again report a shortage of this fish. Neither public nor private areas have produced the usual catch. A large quantity of dead fish was found on a number of the beds, which cannot be easily accounted for.

MACKEREL.

The catch was not up to that of the previous year, there being shortage in both net and line fish.

ALEWIVES.

Prices were low, and very few were taken.

TROUT.

About the usual quantity was taken, and used for home consumption.

I am, sir,
Your obedient servant,

J. A. MATHESON,
Inspector of Fisheries.

SUMMARY FISHERIES LICENSES ISSUED 1915-16 FOR THE PROVINCE OF PRINCE EDWARD ISLAND.

Lobster Packing Licenses	.....	172
Quahaug "	.....	53
Trap Net "	.....	4
Oyster "	.....	572
Smelt Gill Net "	.....	242
Smelt Bag Net "	.....	266

RETURN showing the Number of Fishermen, etc., the Number and Value of Ves- Fishing Industry in the County of Kings, Province

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.												Gill Nets, Seines, Trap and Smelt Nets, etc.	
		Sailing and Gasoline Vessels.				Boats.					Carrying Smacks.				
		(20 to 40 tons) Number.	(10 to 20 tons) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.
	Kings County.			$			$		$			$			$
1	Souris and Red Point	2		3 3500	19	25	500	65	9750	180	..	....	..	250	3225
2	Bay Fortune	.....	.....	...	....	10	200	30	4500	60	..	....	..	40	400
3	Annandale	.....	.....	..	...	40	800	40	6000	100	..	...	..	150	1500
4	Georgetown	1	....	1000	4	30	600	40	6000	100	2	400	2	250	2500
5	Murray Harbour North	.....	.....	...	....	60	1200	60	9000	140	..	...	..	320	3200
6	Murray Harbour South	4		1 3000	8	10	200	65	9750	120	1	200	1	280	2800
7	Morell and St. Peters	.....	...	....	....	15	300	65	9750	115	..	...	.	300	3000
8	Naufrage	.....	.....	...	...	25	500	55	8250	110	..	....	..	120	1200
9	North Lake	....	....	....	...	20	400	40	6000	90	.	....	..	100	1000
10	East Lake	....	.....	....	....	20	400	40	6000	80	..	...	..	100	1000
	Totals	7		4 7500	31	255	5100	500	75000	1095	3	600	3	1910	19825

sels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the of Prince Edward Island, during the year 1915-16.

Fishing Gear.						Canneries.				Other Material.						Persons employed in Canneries, Freezers and Fish-houses.	
Trawls.		Hand lines.		Lobster traps.		Lobster canneries.		Clam canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		Number.
	$		$		$		$		$		$		$		$		
170	1360	100	100	4400	4400	3	2000	1	100	1	1000	10	1000	2	50000	140	1
20	160	50	50	7300	7300	3	4000	....	.....	....	....	4	400	1	5000	40	2
25	200	140	140	12000	12000	2	6000	...	....	....	...	4	400	2	2000	60	3
20	160	120	120	9600	9600	2	7000	2	200	...	....	8	400	2	5000	120	4
25	200	140	140	21000	21000	7	9000	4	300	..	.. ..	10	600	1	12000	100	5
230	1840	200	200	13300	13300	2	14000	1	100	....	....	12	600	1	10000	100	6
125	1000	220	220	26500	26500	10	7800	....	.....	....	....	16	800	1	15000	200	7
20	160	120	120	10400	10400	8	8000	....	.....	....	...	15	1000	1	16000	150	8
30	240	60	60	18700	18700	6	5000	...	.....	....	....	16	800	....	.....	140	9
60	480	70	70	12200	12200	6	12000	....	....	...	....	14	700	....	.....	120	10
725	5800	1220	1220	135400	135400	49	74800	8	700	1	1000	109	6700	11	109000	1250	

RETURN showing the Number of Fishermen, etc., the Number and Value of Ves- Fishing Industry in the County of Queens,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.										
		Sailing and Gasoline Vessels.			Boats.					Carrying Smacks.		
		(10 to 20 tons.) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.
	Queens County.		$			$		$			$	
1	Tracadie	3	1500	12	50	1750	115	17250	330			
2	New London				8	400	47	11750	106			
3	Point Prim				10	500	57	10545	114			
4	Rustico	1	500	3	18	1080	75	18750	183	1	200	2
5	Wheatley River				10	300	12	2040	33			
6	Pownal				4	120	10	2000	23			
7	Charlottetown				10	500	16	3200	60			
8	Crapaud				6	240	14	2800	30			
9	Lot 65				20	600	70	14000	180			
10	Bays and Rivers				70	700	16	4000	24			
	Totals	4	2000	15	206	6190	432	86335	1083	1	200	2

sels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Province of Prince Edward Island, during the year 1915-16.

Fishing Gear.								Canneries.		Other Material.				Persons Employed in Canneries, Freezers and Fish Houses.	
Gill Nets, Seines, Trap and Smelt Nets, etc.		Trawls.		Hand Lines.		Lobster Traps.		Lobster.		Smoke and Fish Houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	
	$		$		$		$		$		$		$		
675	4050	15	300	100	60	13050	12850	4	6000	90	2600	9	9050	111	1
875	5250	13	260	160	96	5530	5212	6	3800	10	875	9	1000	65	2
72	432	10	200	65	39	11449	10001	18	6910	8	240	...	.....	75	3
500	3000	30	600	250	150	12300	12300	4	5400	35	3500	2	1500	96	4
76	456	5	100	15	9	1300	1300	1	500	.....	....	1	400	10	5
30	180	....	.....	....	.....	1500	1500	1	1500	.....	.....	....	.....	6	6
20	300	.....	.....	40	24	...	....	...	...	.....	.....	....	.....	.....	7
65	520	.....	.....	.....	....	4125	3400	5	2350	6	300	....	...	26	8
55	440	.....	.....	25	15	12000	8450	6	6100	17	272	2	1000	58	9
45	270	... ..	.....	....	.....	.....	.....	....	.....	20	200	...	.....	.....	10
2413	14898	73	1460	655	393	61254	55013	45	32560	186	7987	23	12950	447	

RETURN showing the Number of Fishermen, etc., the Number and Value of ... in the Fishing Industry in the County of Prince, Province ...

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.												
		Sailing and Gasoline Vessels.					Boats.					Carrying Smacks.		
		(40 tons and over.) Number.	(20 to 40 tons) Number.	(10 to 20 tons) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.
	Prince County.				$			$		$			$	
1	Tignish	1		1	3400	8	4	200	67	9380	142	4	350	8
2	Nail Pond						8	400	16	3400	39			
3	Skinner's Pond	1			1200	4	17	880	10	1900	56			
4	Miminegash		1	2	2000	8	15	900	30	4200	60			
5	Alberton			2	600	4	6	300	25	3800	50			
6	Roxberry								7	840	16			
7	Brae								4	480	8			
8	West Point								8	960	14			
9	Narrows, Lot 11						5	300	23	4600	53			
10	Ellerslie, Lot 12						1	50	1	200	3			
11	Bideford													
12	Wellington													
13	Grand River						6	480	16	3200	27			
14	Richmond Bay						14	1100	10	2000	48			
15	Traveller's Rest													
16	Malpeque	1	1		600	6	20	1600	17	3400	87			
17	Fifteen Point						4	300	54	10800	119			
18	Summerside								5	1000	10			
19	Carleton								15	3000	27			
20	Tryon								28	5600	60			
21	Enmore						1	80	3	600	7			
22	Indian River													
	Total	3	2	5	7800	30	101	6590	339	58360	826	4	350	8

Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used of Prince Edward Island, during the year 1915-1916.

Fishing Gear.										Other Material.						Persons employed in Canneries Freezers and Fish-Houses,
Gill Nets, Seines, Trap and Smelt Nets, etc.		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice Houses.		Smoke and Fish Houses.		Fishing Piers and Wharves.		
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	
	$		$		$		$		$		$		$		$	
54	870	4	32	6	3	20500	16700	7	7700	.....	.....	11	1500	2	42600	184
30	90	10	70	20	10	3800	3800	4	3000	.....	.....	6	600	.....	.....	60
35	105	50	350	10	5	4300	3900	6	2600	.....	.....	15	1500	.....	.....	108
40	120	55	440	6	3	8000	8000	7	5000	.....	.....	23	1500	1	20000	120
100	800	50	350	10	5	4000	4000	9	1200	1	806	9	400	1	20000	60
28	154	.....	.....	.....	.....	2100	2100	2	600	.....	.....	3	150	1	15000	15
10	30	.....	.....	.....	.....	1600	1600	2	500	.....	.....	3	200	1	6000	12
20	60	.....	.....	.....	.....	2500	2500	7	1600	.....	.....	8	400	1	15000	35
115	300	.....	.....	10	5	4400	4400	6	5000	.....	.....	.....	.....	.....	.....	34
53	330	.....	.....	15	7	400	400	1	300	.....	.....	.....	.....	.....	.....	3
120	350	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
120	600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
142	710	.....	.....	.....	.....	.....	.....	2	2000	.....	.....	7	165	.....	.....	14
80	400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
85	420	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
180	750	.....	.....	.....	.....	10000	10000	3	4000	.....	.....	4	200	1	1600	47
80	1400	.....	.....	.....	.....	20000	20000	12	14500	.....	.....	.....	.....	.....	.....	91
18	315	.....	.....	.....	.....	1300	1300	1	450	.....	.....	.....	.....	.....	.....	10
82	1009	.....	.....	.....	.....	4050	4050	3	1800	.....	.....	.....	.....	.....	.....	17
120	780	.....	.....	.....	.....	10000	10000	5	2400	.....	.....	.....	.....	.....	.....	36
135	660	.....	.....	.....	.....	1300	1300	1	300	.....	.....	.....	.....	2	2000	7
85	400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1732	10644	169	1240	77	38	98250	94050	78	52950	1	800	86	6615	10	122200	853

THE

RETURN showing the Quantities and Values of all Fish caught and landed in during the

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.
			$		$		$		$		$
1	Souris and Red Point			1253	5012	5737	8605	300	300	8780	7024
2	Bay Fortune			1977	7908	1200	1800	75	75	353	282
3	Annandale			3511	14044	600	900	50	50	250	200
4	Georgetown			3122	12488	700	1050	50	50	200	160
5	Murray Harbour, North			5327	21208	800	1200	50	50	120	96
6	Murray Harbour, South			2590	10360	4800	7200	200	200	7100	5680
7	Morell and St. Peters	100	1000	7376	29504	4600	6900	150	150	200	160
8	Naufrage			2700	10800	4800	7200	200	200	140	112
9	North Lake			2786	11134	1700	2550	60	60	130	104
10	East Lake			3189	12756	900	1350	30	30	100	80
	Totals	100	1000	33831	135214	25837	38755	1165	1165	17373	13898

* Cwt. = 100 lbs.

CATCH.

a Green State, in the County of Kings, Province of Prince Edward Island, year 1915–16.

Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Alewives, cwt.	Alewives, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Mixed fish, cwt.	Mixed fish, value.	Clams, brl.	Clams, value.	Quahaugs, brl.	Quahaugs, value.	Number.
	$		$		$		$		$		$		$		$		$		$	
2000	1000	900	3600	....	....	50	250	5	40	5	25	15	15	25	12	200	400	....	....	1
300	150	120	480	....	....	150	750	5	40	5	25	....	....	10	5	50	100	....	....	2
300	150	125	500	....	....	20	100	5	40	5	25	....	....	10	5	40	80	....	....	3
2000	1000	50	200	....	....	20	100	10	80	20	100	....	....	10	5	240	480	....	....	4
1100	550	20	80	..	....	20	100	10	80	25	125	....	....	10	5	400	800	110	275	5
2346	1173	20	80	....	....	20	100	15	120	15	75	15	15	20	10	175	350	....	....	6
200	100	300	1200	50	25	293	1465	10	80	20	100	....	....	20	10	40	80	....	....	7
200	100	350	1400	....	....	20	100	5	40	5	25	....	....	10	5	30	60	....	....	8
150	75	75	300	40	20	30	150	10	80	5	25	....	....	10	5	25	50	....	....	9
100	50	50	200	....	....	20	100	10	80	10	50	....	....	10	5	30	60	....	....	10
8696	4348	2010	8040	90	45	643	3215	85	680	115	575	30	30	135	67	1230	2460	110	275	

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Kings**, Province of **Prince Edward Island**, during the Year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, canned, cases.	Cod, used fresh, cwt.	Cod, slipped green salted, cwt.	Cod, dried, †quintals.	Haddock, used fresh, cwt.	Haddock, dried, quintals.	Hake and Cusk, dried, quintals.	Herring, used fresh, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, brl.	Mackerel, salted, brl.	Number.
	Kings County.														
1	Souris and Red Point	.....	626	500	100	1679	150	50	2927	800	30	555	215	228	1
2	Bay Fortune	.....	989	20	25	377	15	20	118	100	.....	100	21	33	2
3	Annandale	.....	1755	20	20	180	10	13	83	100	.....	100	23	34	3
4	Georgetown	.....	1561	120	40	166	10	13	67	688	52	578	14	12	4
5	Murray Harbour, North	.....	2663	25	20	245	10	14	40	200	.....	450	20	.....	5
6	Murray Harbour, South	.....	1295	375	90	1415	20	60	2366	600	100	723	20	.....	6
7	Morell and St. Peters	100	3688	200	100	1400	20	43	66	50	.....	75	115	62	7
8	Naufrage	.....	1350	100	89	1507	35	55	47	50	.....	75	133	72	8
9	North Lake	.....	1393	40	30	533	15	15	43	50	.....	50	15	20	9
10	East Lake	.....	1595	44	10	277	10	7	33	40	.....	30	14	12	10
	Totals	100	16915	1444	521	7779	295	290	5790	2678	182	2736	590	473	
	Rates $	10	15	2.50	5	6	3	4	5	1	5	2	5	12	
	Values $	1000	253725	3610	2620	46674	885	1160	28950	2678	910	5472	2950	5676	

* Cwt. = 100 pounds. † Quintal = 112 pounds.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc. state, for the County of **Kings**, Province of **Prince Edward Island**, during the Year 1915-16—*Concluded.*

Number.	Fishing Districts.	Alewives, salted, brl.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Eels, used fresh, cwt.	Tom-cod, used fresh, cwt.	Mixed fish, used fresh, cwt.	Clams and Quahaugs, used fresh brl.	Clams and Quahaugs, canned, cases.	Tongues and Sounds, pickled or dried, cwt.	Hake Sounds, dried, cwt.	Fish Oil, gal.	Number.
	Kings County.												
1	Souris and Red Point		50	5	5	15	25	50	150	10	65	4900	1
2	Bay Fortune		150	5	5		10	50				230	2
3	Annandale		20	5	5		10	40				160	3
4	Georgetown		20	10	20		10	40	200			130	4
5	Murray Harbour, North		20	10	25		10	50	460			80	5
6	Murray Harbour, South		20	15	15	15	20	35	140	5	50	4730	6
7	Morell and St. Peters	17	293	10	20		20	40		5		130	7
8	Naufrage		20	5	5		10	30				90	8
9	North Lake	13	30	10	5		10	25				80	9
10	East Lake		20	10	10		10	30				60	10
	Totals	30	643	85	115	30	135	390	950	20	115	10590	
	Rates $	3	7	10	10	2	1	4	6	4	25	40c.	
	Values $	90	4501	850	1150	60	135	1560	5700	80	2875	4236	

Total value $377,547

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a green state, in the County of Queens, Province of Prince Edward Island, during the year 1915-16.

Number.	Fishing Districts.	Lobsters, cwt.*	Lobsters, value.	Cod, cwt.	Cod, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Alewives, cwt.	Alewives, value.	Number.
	Queens County.		$		$		$		$		$		$	
1	Tracadie	4013	12039	3593	6090	.... ..	.....	390	304	597	2985	300	300	1
2	New London	2833	8499	3232	5178	80	101	333	259	666	3330	.....	.....	2
3	Point Prim	2278	6833	191	323	664	843	107	80	.....	.....	.....	.....	3
4	Rustico	5050	15150	16531	28020	.....	.....	649	491	910	4550	.....	.....	4
5	Wheatley River	440	1320	596	1010	....	.....	45	35	180	900	.....	.....	5
6	Pownal	440	1320	.....	.....	.....	.....	21	16	.....	.....	.....	.....	6
7	Charlottetown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
8	Crapaud	744	2233	.....	.....	.....	.....	211	163	.....	.....	.....	.....	8
9	Lot 65	3329	9988	70	118	....	.....	403	314	.....	.....	.....	.....	9
10	Bays and Rivers	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
	Totals	19127	57382	24213	41039	744	944	2159	1662	2353	11765	300	300	

* Cwts. = 100 pounds.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a green state, in the County of Queens, Province of **Prince Edward Island**, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Smelts, cwt.*	Smelts, value.	Trout, cwt.	Trout, value.	Eels, cwt.	Eels, value.	Oysters, brls.	Oysters, value.	Clams, brls.	Clams, value.	Quahangs, brls.	Quahaugs, value.	Number.
	Queens County.		$		$		$		$		$		$	
1	Tracadie	744	3691	4	24	25	150	1060	4547					1
2	New London	347	1724	6	36	10	60	20	86					2
3	Point Prim	208	1032	16	96			586	2514					3
4	Rustico	111	551							100	250			4
5	Wheatley River	67	333											5
6	Pownal	33	164					15	65					6
7	Charlottetown	161	814					92	395					7
8	Crapaud	13	690											8
9	Lot 65	622	3086					634	2720			50	75	9
10	Bays and Rivers	213	1057					124	532					10
	Totals	2648	13142	26	156	35	210	2531	10859	100	250	50	75	

* Cwts. =100 pounds.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Queens**, Province of **Prince Edward Island**, during the year 1915-16.

Number.	Fishing Districts.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.*	Cod, shipped green salted, cwt.	Cod, dried, quintals.†	Hake and Cusk, used fresh, cwt.	Hake and Cusk, dried, quintals.	Herring, used fresh, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Alewives, salted, brl.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Eels, used fresh, cwt.	Oysters, used fresh, brl.	Clams and Quahaugs, used fresh, brl.	Tongues and sounds, pickled or dried, cwt.	Fish oil, gal.	Number.
	Queens County.																					
1	Tracadie	2006	.....	927	433	600	....	....	50	6	161	423	58	100	744	4	25	1060	.....	½	500	1
2	New London	1417	.....	202	750	510	20	20	24	43	90	66	200	...	347	6	10	20	...	1	475	2
3	Point Prim	1138	.....	71	30	20	43	207	3	10	37	.....	....	.....	208	16	.....	586	.....	.....	160	3
4	Rustico	2525	....	2471	1015	4010	.....	...	81	20	254	610	100	....	111	.....	.....	.....	100	.....	9500	4
5	Wheatley River	220	....	296	75	50	.....	.....	5	.....	20	.....	60	.....	67	...	....	.....	....	.....	150	5
6	Pownal	210	20	.....	....	.....	.....	.....	6	5	.....	.....	...	.....	33	.....	.....	15	.....	.....	....	6
7	Charlottetown	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	164	.....	.....	92	.....	.....	.....	7
8	Crapaud	373	.....	.....	.....	.....	.....	.....	18	15	74	.....	.....	....	139	.....	.....	.....	.....	.....	.....	8
9	Lot 65	1665	.....	50	10	.....	.....	.....	47	22	145	....	....	.....	622	.....	.....	631	50	.....	.....	9
10	Bays and Rivers	.....	....	...	.....	.....	.....	.....	....	.....	...	.....	.....	.....	213	.....	....	124	.....	.....	.....	10
	Totals	9554	20	4017	2313	5190	63	227	234	121	781	1099	418	100	2648	26	35	2531	150	1½	10785	
	Rates $	14	9	2.50	4	6	2	4.50	2	4	2	10	15	3	5	10	10	5	3	14	40c	
	Values $	133756	180	10042	9152	31140	126	1022	468	484	1562	10990	6270	300	13240	260	350	12655	450	21	4314	
	Total value	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$236,882

* Cwt. = 100 lbs. † Quintal = 112 lbs.

THE CATCH.

RETURN showing the Quantities and Value of all Fish caught and landed in a green state, in the County of Prince, Province of Prince Edward Island, during the year 1915-16.

Number.	Fishing Districts.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Smelts, cwt.	Smelts, value.	Oysters, brl.	Oysters, value.	Quahaugs, brl.	Quahaugs, value.	Number.
	Prince County.		$		$		$		$		$		$		$		$	
1	Tignish	8248	16496	1394	1394	720	432	2260	1130	130	390	40	200					1
2	Nail Pond	1962	3924	992	992	270	162	827	414	95	285							2
3	Skinner's Pond	1420	2840	1294	1294	525	315	967	484	174	522							3
4	Miminegash	2203	4406	996	996	840	504	898	449	190	570	46	230					4
5	Alberton	672	1344	1094	1094	810	486	841	420	323	1615	210	1050					5
6	Roxberry	810	1620	30	30			781	390			162	972	460	1150			6
7	West Point	345	690	40	40			481	240			42	210					7
8	Brae	310	620	38	38			520	260									8
9	Narrows, Lot 11	2600	10400	300	600			300	150			25	125	291	2328	42	84	9
10	Ellerslie, Lot 12	150	600	200	400			50	25			37	185	640	5120			10
11	Bideford							50	25					800	6400	112	224	11
12	Wellington							50	25			25	150	624	4992			12
13	Grand River	350	1400	50	100			100	50			20	120	186	1488			13
14	Richmond Bay	2600	10400	40	80							28	168	205	1640			14
15	Traveller's Rest							100	50			55	330	144	1152			15
16	Malpeque	3822	15288	690	1380			400	200	365	1095	70	420	100	800	130	260	16
17	Fifteen Point	3500	14000					300	150			26	156					17
18	Summerside	221	884					100	50			109	654					18
19	Carleton	900	3600					100	50			140	840					19
20	Tryon	1632	6528					150	75			39	234					20
21	Enmore	191	764					100	50			30	180	155	1240	253	506	21
22	Indian River							130	65			17	102	70	560			22
	Totals	31936	95804	7158	8438	3165	1899	9505	4752	1277	4477	1121	6326	3675	26870	537	1074	

* Cwt. = 100 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried pickled, canned, etc., state for the County of Prince, Province of Prince Edward Island, during the year 1915-16.

Number.	Fishing Districts.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.*	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, quintal.†	Hake and Cusk, dried, quintal.	Herring, used fresh, cwt.	Herring, pickled, brl.	Herring, used as bait, brls.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Smelts, used fresh, cwt.	Oysters, used fresh, brl.	Clams and Quahaugs, used fresh, brl.	Tongues and sounds, pickled or dried, cwt.	Fish Oil, gal.	Number.
	Prince County.																	
1	Tignish	4076	96			464	240	2		1129	80	17	40			6	958	1
2	Nail Pond	981				327	90	3		412	60	12				4	330	2
3	Skinners Pond	710				431	175	1		483	105	23				10	750	3
4	Miminegash	1066	71			332	280			449	85	35	46			11	460	4
5	Alberton	336				364	270			420	323		210			8		5
6	Roxberry	405				10				390			162	460				6
7	West Point	172		10		10				241			42					7
8	Brae	155		8		10				260								8
9	Narrows, Lot 11	1300		30	50	58		2	30	104			25	291	42		90	9
10	Ellerslie, Lot 12	75		10	40	37		2	10	9			37	640			60	10
11	Bideford								12	7				800	112			11
12	Wellington							2	10	9			25	624				12
13	Grand River	175		20	15			3	15	26			20	186			16	13
14	Richmond Bay	1300		40									28	205			14	14
15	Travellers Rest							4	8	36			55	141				15
16	Malpeque	1911		50	100	146		5	10	182	12	118	70	100	130		230	16
17	Fifteen Point	1750						15	12	124			26					17
18	Summerside	110						3		48			109					18
19	Carleton	450						12	5	41			140					19
20	Tryon	816						5	6	63			39					20
21	Enmore	96						12	7	38			30	155	253			21
22	Indian River							6	10	47			17	70				22
	Totals	15884	167	168	205	2191	1055	57	135	4518	665	205	1121	3675	537	39	2908	
	Rates	15	7	2	4	6	5	1	5	2	10	15	6	8	5	20	40c.	
	Values	238260	1169	336	820	13146	5275	57	675	9036	6650	3075	6726	29400	2685	780	1163	
	Total values																	$319,253

* Cwt. = 100 lb. † Quintal = 112 lb.

RECAPITULATION

Of the Quantities and Values of all Fish caught and landed in a green state and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the Province of Prince Edward Island, during the year 1915-16.

Kinds of Fish.	Caught and landed in a Green State.		Marketed.		Total marketed value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Salmon cwt.	100	1,000			
" used fresh "			100		1,000
Lobsters "	84,894	288,400			
" canned cases.			42,353	625,741	
" shipped in shell cwt.			187	1,349	
					627,090
Cod "	57,208	88,232			
" used fresh "			5,629	13,988	
" green—salted "			3,042	12,692	
" dried "			15,160	90,960	
					117,640
Haddock "	1,165	1,165			
" used fresh "			295	885	
" dried "			290	1,160	
					2,045
Hake and Cusk "	21,282	16,741			
" " used fresh "			63	126	
" " dried "			7,072	35,247	
					35,373
Herring "	20,360	10,762			
" used fresh "			2,969	3,203	
" pickled brl.			438	2,069	
" used as bait "			8,035	16,070	
					21,342
Mackerel cwt.	5,640	24,282			
" used fresh "			2,354	20,590	
" salted brl.			1,096	15,021	
					35,611
Alewives cwt.	390	345			
" salted brl.			130		390
Smelts cwt.	4,412	22,683	4,412		24,467
Trout "	111	836	111		1,110
Eels "	150	785	150		1,500
Tom-cod "	30	30	30		60
Mixed Fish "	135	67	135		135
Oysters brl.	6,206	37,729	6,206		42,055
Clams and Quahaugs "	2,027	4,134			
" used fresh "			1,077	4,695	
" canned cases.			950	5 700	
					10,395
Tongues and Sounds cwt.			175½		3,756
Fish Oil gal.			24,283		9,713
Totals		497,191			933,682

RECAPITULATION

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in the Province of Prince Edward Island, for the year 1915-16.

—	Number.	Value.
		$
Sailing and gasolene vessels	25	17,300
Boats (sail)	562	17,880
" (gasolene)	1,271	219,695
Carrying smacks	8	1,150
Gill nets, seines, trap and smelt nets, etc	6,055	45,367
Trawls	967	8,500
Hand lines	1,952	1,651
Lobster traps	294,904	284,463
" canneries	172	160,310
Clam canneries	8	700
Freezers and ice-houses	2	1,800
Smoke and fish-houses	381	21,302
Fishing piers and wharves	44	244,150
Total	.....	1,024,268

Number of men employed on vessels	76
" " boats	3,004
" " carrying smacks	13
" persons employed in fish-houses, freezers, canneries, etc	2,550
	5,643

APPENDIX 3.

NOVA SCOTIA.

District No. 1.—Comprising the four counties of Cape Breton Island. Inspector A. G. McLeod, Whitney Pier.

District No. 2.—Comprising the counties of Cumberland, Colchester, Pictou, Antigonish, Guysborough, Halifax, and Hants. Inspector, R. Hockin, Pictou.

District No. 3.—Comprising the counties of Kings, Annapolis, Digby, Yarmouth, Shelburne, Queens and Lunenburg. Inspector, Ward Fisher, Shelburne.

REPORT ON THE FISHERIES OF DISTRICT No. 1.

To the Superintendent of Fisheries,
Ottawa.

Sir,—I have the honour to submit my fourth annual report on the fisheries of District No. 1, of the province of Nova Scotia, together with tabulated data indicating the quantities of fish caught in the several counties of the district, materials used, and the persons employed in these fisheries.

The haddock fishing, is of course, the predominant one in Victoria county; but a very extensive cod fishery is carried on in Inverness county.

VALUE OF THE FISHERIES.

The total marketed value of all kinds of fish, and fish products, for the fiscal year ending March 31, 1916, amounted to $1,289,826, as against $1,029,650, for the preceding twelve months, an increase of $260,176. This increase in value is due to the catch of haddock being 100 per cent higher than the preceding year, and a better price being paid for nearly all kinds of marketed fish, with the exception of lobsters.

NUMBER OF MEN EMPLOYED AND CAPITAL INVESTED.

During the year under review, there were 7,474 persons engaged in the work of the fisheries. The total number is greater than that for the preceding year, by 122. Of the total, 5,702 were employed on vessels, boats and smacks, and 1,772 in fish houses, freezers and canneries.

The amount of capital invested in the form of vessels, boats, fishing gear, and fixtures on shore, was $1,270,318, as compared with $1,213,686 for the preceding year.

RICHMOND COUNTY.

The total marketed value of the fisheries of this district, amounted to $241,541. The increase in value was due to the large catch of lobsters, as well as the increased value of nearly all kinds of fish.

CAPE BRETON COUNTY.

The total marketed value of the fisheries of this county amounted to $301,590. The increase was due to the catch of salmon, lobsters, haddock and swordfish being considerably larger, and the rates higher.

VICTORIA COUNTY.

The total marketed value of the fisheries of this district amounted to $284,739, for the year under review. The increase was caused by the large catch of haddock, herring and swordfish, and the rates being higher.

INVERNESS COUNTY.

The total marketed value of the fisheries of this district for the year under review, amounted to $461,956. The increase was caused by the catch of cod, haddock, hake, pollock, herring, mackerel, alewives, halibut, and swordfish being larger when compared with that of the preceding year.

SALMON.

Although the catch of salmon on the sea coast shows a decrease, compared with the preceding year, still, it gives me very great pleasure to report that it was a banner year for angling, especially in the Margaree river, due to some extent, to the water being high all through the angling season; but more particularly, to the protection afforded by the indefatigable efforts put forth by the three special head guardians recently appointed on this river, as well as the motor boat employed between Margaree harbour and Joseph Miller's.

LOBSTERS

Show an increase in catch, but a decrease in marketed value, owing to the price of the canned article being $4 per case lower than in the preceding year.

COD.

The total catch of cod was less than that for the preceding year.

HADDOCK

Shows an increase in the catch as well as an increase in the marketed value when compared with the preceding year.

HAKE.

The total catch of hake was greater than that for the preceding year.

HERRING

Shows an increase in catch, and in the marketed value, when compared with the preceding twelve months. Within the recollection of the oldest residents, the July herring never struck on this coast in such large quantities; but the fishermen were obliged to cease operations while the herring were still very plentiful, on account of there being no salt available; otherwise the catch would, no doubt, have been at least 100 per cent greater.

ALEWIVES.

Were exceptionally plentiful in the Margaree river, and the total catch was 5,160 hundredweights.

SWORDFISH.

The total catch of swordfish was 4,284 hundredweights, as compared with 1,127 hundredweights for the preceding year.

CONFISCATIONS.

Five salmon nets, two herring nets, two gaspereaux nets, illegally set, and one boat used for illegal fishing, were confiscated during this year. Also, two smelt nets.

PROSECUTIONS.

Two persons were prosecuted for violations of the Fishery Regulations, and fines imposed in each case, one for illegal smelt and one for illegal salmon fishing.

LICENSES ISSUED.

Sixty-one oyster licenses, one hundred and forty-five smelt gill-net licenses, twenty-seven bag-net licenses, thirty-one trap-net licenses, sixty-two lobster licenses, thirty-two additional lobster licenses, twenty-seven angler's permits.

PATROL BOATS.

There are no patrol boats in this district, with the exception of motor-boat supplied to the special head guardian on the Margaree river.

The overseers and guardians performed their duties in a very efficient manner during the year, and I desire to express to you my high appreciation of their services.

VICTORIA FISHERIES PROTECTIVE ASSOCIATION.

I desire to express to you my high appreciation of the invaluable services rendered me by the efficient and obliging secretary of this association—George Kennan, Litt.D.

I found him ready and willing at all times to do everything possible in his power in the interest of the fisheries of this island, and his co-operation and support was of inestimable help to me, especially, in the protection of the waters under my jurisdiction.

LOSS OF LIFE.

I regret, exceedingly, to report the drowning of one fisherman, at Eastern harbour, Inverness county, in June, by being swept overboard by the mainboom.

I am, sir, your obedient servant,

A. G. McLEOD,
Inspector of Fisheries.

REPORT ON THE FISHERIES OF DISTRICT No. 2.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit my annual report on the fisheries of District No. 2, province of Nova Scotia, for the year ended March 31, 1916, together with tabulated statements showing the quantities and values of fish caught in the several counties of the districts, and the material used and persons employed in the fisheries.

The aggregate value of the catch for the year is estimated at $2,173,057, as compared with $1,945,391, the estimated value of the catch of 1914-15, which is an increase of about 11 per cent.

Of the deep-sea fish the catch of cod shows an increase of 7 per cent; hake an increase of 50 per cent; pollock an increase of 25 per cent; halibut an increase of 20 per cent; haddock a decrease of 8 per cent.

Herring show an increase of 9 per cent, and mackerel a decrease of about 9 per cent.

SALMON.

The catch has been the largest, with one exception, namely the season of 1913, that has been reported in the last twenty-eight years, and is an increase of about 50 per cent over that of last year.

On the Atlantic coast, the catch is short of that of last year, being 30 per cent less. On the straits of Northumberland, in Antigonish and Pictou counties, they have had the largest catch for many years, about 125 per cent over that of last year. Fishing on Cobequid bay and the basin of Minas was also better than last year, about 300 per cent.

The rivers were in a favourable condition during the time when the fish frequent them for spawning.

LOBSTERS.

The catch of lobsters was about 9 per cent greater than that for last year. (While in the year 1896, when lobster canneries were first licensed, there were 68,352 cases of lobsters packed and 5,810 hundredweights shipped in shell in this district this year there were only 31,387 cases packed and 18,962 hundredweights shipped in shell.)

On the straits of Northumberland, the catch was 4 per cent less than that of 1914, owing to the ice preventing the setting of gear until about the 15th of May, and the fishing season ending on the 25th of June, there was a very short time to take the fish.

On the Atlantic coast, the catch was 30 per cent better than last year, which was attributed to better weather conditions prevailing than during the season of 1914.

SHAD.

The catch of shad is the largest reported for the past twelve years.

ALEWIVES.

Alewives show an increase of 40 per cent and is also the largest catch since the year 1903.

SMELTS.

There is a decrease of 30 per cent in the quantity of smelts reported. The weather was mild during December and the first part of January and the ice was not strong enough for bag-net fishing until the 12th of January. After the ice formed, fish appeared to be scarce and many of the fishermen went to work in the lumber woods.

PROSECUTIONS.

There were six prosecutions during the year for having berried lobsters in possession; two for fishing for lobsters out of season; five for allowing sawdust to pass into waters frequented by fish; seven for taking smelts illegally; and four for fishing for salmon in the close season.

Twenty-one nets were confiscated, being illegally set.

LOSS.

The loss to the fishermen, by gales, of nets and lobster gear during the year is estimated to have been about $7,000.

LICENSES.

The licenses issued in this district the past year have been as follows: 53 trap-net licenses, 88 lobster canning and 79 additional licenses, 10 herring weir, 154 smelt bag-net, 76 smelt gill-net, 94 oyster fishery, 34 salmon-net, 14 anglers' permits, 164 drag seine.

The following is a synopsis of reports received from the overseers:—

Overseer Thomas Kennedy, district from Lunenburg county to Halifax city, states that salmon were scarce along the whole part of his division. There was an increase in hake and cusk, due to schooners fishing on the banks in deep waters; hake also came close to the shore, so that small boats got a fair catch. The increase of pollock is due to the fact that the fish schooled in large quantities, and many seines that were set for mackerel got pollock. The increase in herring is largely due to the herring striking in along the shore, not in great quantities, but all the net fishermen got a fair share. The slight increase in mackerel in this district is due to the fine weather at the time mackerel were on the coast. Halibut were plentiful on the banks, as reported by the vessels. The increase of albacore and swordfish was due to the fact that small boats are now prepared to catch them if they appear when they are attending to their nets.

The vessels in this district are in a better condition, that is to say, old boats have been replaced by new ones.

The close season has been strictly observed.

ing, keeps notices posted at the mills, and also prevents sawdust getting into the rivers by visiting the mills.

The fishways in his district are in a good condition.

Overseer George Rowlings, district from Halifax city to Ship harbour, remarks on the difficulty of getting an exact statement of the haddock, cod, and pollock, as the fisherman generally include all of these as cod.

He reports a small decrease in the catch of herring, but that of 1914 was exceptionally good. Mackerel were somewhat more plentiful than last year. Smelts much more plentiful than in 1914, nearly double the quantity were taken. A number of persons were fined at Jeddore for taking smelts out of season. There was a decrease in salmon from last year. Protection was better than in other years. In 1914, a

number of persons were fined for spearing salmon in Musquodoboit river, but he has not learned of any violations since.

There was a slight addition to the fishing vessels in his district; each year the fishermen are adding gasoline engines to their fishing boats.

Overseer Robert Gaston, district from Ship harbour to Guysborough county line, remarks that there was quite an increase in the lobsters canned and shipped in shell, also in mackerel, but a decrease in all other fish, especially in cod.

The fishing fleet is improving each year.

The close season has been well observed. No streams are polluted by sawdust. The fishways in his district are in good repair.

Overseer R. V. Cooper, district from Guysborough county line to County harbour, remarks that there was a noticeable increase in lobsters and herring; a shortage in the catch of salmon, while the catch of other kinds of fish were about the same as last year.

One new fishing vessel has been added to the list, while the fleet of boats is much the same as last year.

No abuses exist, and the close seasons were strictly observed in his district. He ascertains this by close observation.

Sawdust is removed from the mills by conveyors and burners, and is consumed and not allowed to pollute the rivers. Fishways are in good condition.

Overseer Hugh McDougall, district of Antigonish county, states that the most noticeable increase in fish caught this season is in salmon and cod, the catch of all other fish being about an average one. Salmon are becoming more plentiful in our waters during recent years, and favourable weather conditions account for the increased catch. He attributes the increase in the quantity of cod to the fact that fishermen fished farther off the shore than they could do formerly on account of steam trawlers.

The condition of the fishing fleet shows an increase in quantity of gasoline boats and a corresponding decrease in the number of sail boats.

No abuses exist that he is aware of, and close seasons have been rigidly observed. There have been fewer attempts to poach in the streams than in former years. No sawdust or refuse allowed in the streams. Fishways in good condition.

The decrease in the price of lobsters and salmon during the past year greatly decreased the value of the industry in his district.

Overseer D. L. McDonald, district from Antigonish county line to French river, states that he found some illegal fishing for salmon in his district, and three nets were seized and confiscated. The mill-owners observe the regulations concerning sawdust.

Overseer William Germain, district from French river to Pictou harbour, remarks that the rough weather prevented the lobster fishermen setting their traps until late in May. Salmon were much more plentiful than in the previous year. Smelt fishing was a failure, due probably to the ice being late in forming in the fishing months. Spring herring were plentiful, but fall herring scarce.

No abuses are known to exist, and the close seasons have been pretty well observed. To prevent illegal fishing, posters are distributed in all parts of the district, and when there is likely to be illegal fishing for salmon, he visits the rivers to see that the guardians are doing their duty.

There is only one fishway in his district, which, when he visited it in October last, was in good condition.

Overseer A. O. Pritchard, district Pictou harbour and Pictou island, says that on the East and Middle rivers there was very little poaching during the past year for salmon. On the West river, the law was set at defiance, two men were captured and were convicted and fined.

Overseer Langille, Colchester county, straits of Northumberland district, found considerable illegal fishing for salmon in Waugh's river; six nets were seized and confiscated for illegal fishing.

Overseer R. S. Smith, Cumberland county, from Cape Cliff to Port Philip, states that there was no fishing for lobsters until about May 10, and, on account of the low price, there were only about two-thirds as many traps set as in the previous year, but about as many lobsters were taken. On account of the ice, herring fishing was greatly retarded; the first run of fish was over before the ice left the coast.

There were two new factories for smoking fish put up in his district.

He finds that oysters in Pugwash river are becoming scarcer each year, and is of the opinion that the fishing should be closed for two years. Smelts were very scarce during the first part of the winter, but the fishing was better the last part of the season, and prices high.

Nearly all sail-boats have been dispensed with, and gasolene boats taking their place.

Overseer C. T. Hunter, district from Port Philip to Westmorland county line, states that lobsters were plentiful as compared with the previous year. Five or six new fishing boats were added to the fleet. Herring was scarce, caused probably by the heavy ice in the straits remaining so late. Four new lobster factories and two herring smoke factories were erected.

Close season was very well observed, perhaps the best since he has been overseer.

Overseer A. D. Marshall, district of River Philip, states that the catch of smelts was extremely small for the number of licenses issued on the river, but when a large number of the fishermen found that the smelts were so scarce, they landed their nets and went to the lumber woods. In his opinion, the cause of smelts being so scarce in the river was due to heavy winds about the last of November causing the water to become very muddy; this was followed by a heavy freshet which drove the smelts into the straits, the weather then becoming cold they remained in deep water through the winter.

There was some illegal fishing for salmon at night, and as the river is skirted with woods and bushes it makes it difficult to prevent it. Eight salmon nets were seized and confiscated, but it was impossible to identify the persons who set these nets.

A concrete fishway has been built in the concrete dam in river Philip near Oxford Junction, which gives the fish free access to the upper waters of the river.

Overseer S. F. Fletcher, Cobequid basin, Cumberland county line to Salmon river, Colchester county, says the catch of shad, salmon, and gaspereaux was much larger this year than last, but pollock was not so plentiful. Herring catch was good, and a number of new weirs are being built in the basin this year.

The guardians on the river look after their work very closely, but were never able to make any convictions. Two nets were seized and confiscated for being set illegally to catch salmon.

Overseer J. H. McCleave, district from Salmon river to Shubenacadie and Stewiacke rivers, having observed conditions in his district, he is not aware of any abuses existing. The close season is well observed. There have been no violations of the law referring to pollution of streams by sawdust; the owners of the mills in operation being very careful in this respect. There are no dams on the Stewiacke river now; the dam that formerly existed has been carried away.

The catch of alewives was better than for 1914, but shad and salmon were not very plentiful.

Overseer John A. Dillon, Guysborough, reports that during the season herring were very plentiful, and, owing to the departmental policy of informing vessels of the places where bait may be had, a considerable quantity was sold to the bankers.

At Isaac's harbour, herring were put up after the Scotch method, and the packers are very well satisfied with the results, and propose to go into it more extensively.

No addition has been made to the fleet of vessels, but they are as fine vessels as any in the world.

Two cold storage plants have been built, one at Whitehead and the other at Goldboro.

Operations at lobster hatchery in Canso are rather late in beginning, and he recommends that the hatchery be opened as soon as the fishermen are ready to start.

Close seasons have been well observed, excepting in one instance, where illegal lobster fishing was found, and after watching all night the overseer was able to arrest the persons fishing, and they were convicted and fined, and their boat confiscated.

Overseer Thomas Rose, Hants county, Shubenacadie river to Tennycape, says there is quite an increase from last year, fish of all kinds being more plentiful, and a large number of boats were engaged in the fishing. The weirs between Selmah and Tennycape had much more work than the year before.

There has been no trouble with sawdust or mill refuse this year. Some illegal fishing was complained of between Shubenacadie and Milford. He patrolled the river for two nights but found that all the nets were legally set.

I am, sir, your obedient servant,

R. HOCKIN,
Inspector of Fisheries.

REPORT ON THE FISHERIES OF DISTRICT No. 3.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit the annual statistical report for District No. 3 for the year ended March 31, 1916.

The operations during the year have been profitable to both fishermen and dealers, notwithstanding that the weather conditions from September until the close of the year, March 31, prevented successful operations of the off-shore boat and vessel fishermen. These untoward conditions resulted in a great shortage in the landings of fresh cod, haddock and other deep-sea fish, and it was found impossible, therefore, to meet the demands of the market. If it had not been for the catches landed by the steam trawlers at Digby and Lockeport, the shortage would have been more acute.

The Lunenburg county catch, made chiefly by the grand banks fleet, and utilized for the dried-fish trade, was most successful, the total catch of cod being 562,923 hundredweight as compared with 366,297 hundredweight of the preceding year. There was also a large increase in the catch of swordfish and halibut for this county, the first named increasing from 243 hundredweight to 5,726 hundredweight.

The total marketable value of catch for the whole district, including the by-products, amounted to $5,703,968, as compared with $4,755,060, an increase of $948,908.

LOBSTERS.

Notwithstanding that the market for canned lobsters in England and continental Europe continued to be greatly restricted, the fishermen generally have had the most prosperous year in the history of the fisheries. The total catch was 142,958 hundredweight as compared with 120,693 hundredweight the preceding year. The

total market value was $2,029,566 as compared with $1,535,156 for the preceding year.

The increase is largely in the shipments of fresh, which increased from 64,130 hundredweights to 82,314 hundredweights, with a total marketable value of $1,504,732 as compared with $1,026,080 for the preceding year.

The pack increased from 28,282 cases to 30,319 cases, with a marketable value of $524,834, as compared with $509,076.

The increase of quantity shipped in the shell may be attributed to the continued extraordinary run of large lobsters, which was noted in the previous report. The prices received for these lobsters, which are shipped principally to Boston, were good, and many of the fishermen reaped a rich harvest, $70 and more per crate of about 160 pounds was not unusual. In fact, in one instance, $130 was paid for one crate. It should be stated, however, that these unusual prices were for lobsters shipped during January and February, when the catch was small and the demand heavy.

The canned-lobster trade recovered to a most gratifying extent from the serious conditions at the beginning of the previous season, when the disturbance of trade conditions caused by the war greatly restricted the markets of England and continental Europe. The packers were caught with a large pack on hand, and as a consequence the prices sharply declined. Dealers met the emergency with great ability, and succeeded in disposing of most of the pack before the opening of the present season. While the loss of profits was great, no serious consequences were felt. The present season brought greatly improved conditions and much activity among the packers. The fishermen were paid much better prices for "shack" lobsters than the previous year.

COD AND HADDOCK.

The total catch of cod and haddock was 1,142,130 hundredweight as compared with 938,379 hundredweight of the previous year.

The total marketable value was $2,334,110 as compared with $2,248,250, of the preceding year.

There was an increase in the cod catch of 172,431 hundredweight in marketable value $318,241; while there was a decrease in the haddock catch of 68,680 hundredweight, and in the marketable value of $232,381.

HAKE AND POLLOCK.

The total catch was 249,297 hundredweight as compared with 214,563 hundredweight for the preceding year. The marketable value was $376,877 as compared with $276,932. Digby shows an increase of 40,302 hundredweight in the catch of hake, and a decrease of 7,416 hundredweight in pollock. Pollock school in immense quantities in St. Marys bay, Digby county, during the months of May, June, July, and August of each year, and the catches that are made by hook-and-line fishing are negligible as compared with the catches that might be made by the use of more advantageous methods. It has therefore been advocated that the use of purse-seine for the taking of pollock be permitted in St. Marys bay during the months named. Under the proper regulations there would appear to be no serious objection to the use of purse-seine for this purpose.

HERRING.

The total catch was 264,409 hundredweight as compared with 228,285 hundredweight the preceding year. The value of the catch marketed was $367,802 as compared with $306,588 for the preceding year.

The pickled herring trade decreased from a pack of 31,964 barrels to 26,815 barrels. In the Woods Harbour district of Shelburne, 5,450 barrels were put up by dealers from Philadelphia, under methods similar to those prescribed by the new Fish Inspection Act. This particular pack was for export to the United States. A much greater quantity would have been put up if the fish could have been secured in good condition. The price received for the special pack alluded to averaged about $10 per barrel as compared with $4 under the inferior methods generally in use. It is probable that the pack under the conditions prescribed by the Inspection Act will be greatly increased from year to year, and a most remunerative industry established.

MACKEREL.

The total mackerel catch was 49,128 hundredweight as compared with 23,544 hundredweight, or more than 100 per cent. The marketable value was $269,254, as compared with $117,425 the preceding year.

HALIBUT, SWORDFISH, AND ALBACORE.

The catch of halibut was 11,684 hundredweight, an increase of 2,962 hundredweight over the catch of the preceding year, and an increase of $24,753 in the marketable value. The catch of swordfish was 7,448 hundredweight, with a marketable value of $47,587.

The catch of albacore or tuna was 3,051 hundredweight, with a marketable value of $14,541, being a slight increase as compared with last year.

SALMON AND TROUT.

The catch of salmon was 1,790 hundredweight as compared with 1,877 hundredweight the preceding year, and the marketable value was $32,855 as compared with $35,102 for the year previous. The catch of trout showed an increase of about 50 per cent. It should be understood that the catches of salmon and trout include only the catches that are reported to the fishery officers; as the salmon is largely a sport fish, and trout wholly so, it is impossible to secure statistics that adequately cover the quantity taken, as innumerable sportsmen frequent the rivers and streams from whom it is impossible to secure returns.

MEN AND PROPERTY.

The total value of vessels, boats, nets, and other property directly employed in the fishing industry was $4,629,918, being an increase of $239,412 over that for last year. The total number of persons employed was 14,195. This is a slight decrease on the number employed the preceding year, which was 14,312.

PROTECTION SERVICE.

The fishery patrol boats have continued to render valuable and effective service, and in no small degree contributed to a better observance of the regulations, par-

ticularly with regard to the prevention of illegal lobster fishing. The fishermen and others interested appreciate the insistence of rigid observance of the close season for lobster fishing, and attribute the improvement in the fishing very largely to this insistence.

I desire to express my appreciation of the faithfulness and vigilant service rendered by the fishery officers during my absence from the district last year. It is very much to the credit of the service that their duties were performed, under such conditions, with unusual fidelity.

I am, sir, your obedient servant,

WARD FISHER,
Inspector of Fisheries.

RETURN showing the Number of Fishermen, the Number and Value of Vessels, Industry in the County of Richmond, Province

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.														
		Sailing and Gasolene Vessels.						Boats.					Carrying Smacks.			
		(40 tons and over.) Number.	(20 to 40 tons.) Number.	(10 to 20 tons.) Number.	Value.	Men.		Sail.	Value.	Gasolene.	Value.	Men.	Number.	Value.	Men.
	Richmond County.				$				$		$			$	
1	Fourchu, Framboise and vicinity	...	.....	.....	.....	....		148	3450	11	3400	252	4	2500	12
2	Grand River and vicinity ..	.....	.....	.....	.... .	...		120	2275	9	3000	153	..	. ..	....
3	Point Michaud and L'Ardoise	.....	.....	2	1650	7		363	16285	18	6200	373	..	...	....
4	Rockdale and Grande Grève.	.....	.....	.....	...	....		167	6493	2	900	185	2	675	2
5	St. Peter's and River Bourgeois ..	1	3	7	14000	84		60	1200	7	2500	130	7	1500	20
6	Louisdale and River Inhabitants. .	.....	1	... .	600	6		30	600	3	900	72	..	....	....
7	Ports Malcolm and Richmond.	.....	... ..	.....	.....	....		20	400	....	. .	40	..	....	....
8	West Bay.	.....	.....	.....	.	....		10	150	..	. ..	20	..	....	....
9	Ile Madame.	3	5	15	13500	151		306	3672	53	11925	350	5	1250	9
	Totals..	4	9	24	29750	248		1224	34525	103	28825	1575	18	5925	43

SESSIONAL PAPER No. 39

Boats and the Quantity and Value of all Fishing Gear, etc., used in the Fishing of Nova Scotia during the Year 1915-16.

Fishing Gear.										Canneries.		Other Material.						Persons employed in Canneries, Freezers and Fish Houses.	
Gill Nets, Seines, Trap & Smelt Nets		Weirs.		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freez'rs and Ice Houses.		Smoke and Fish Houses.		Fishing Piers and Wharves			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	$		$		$		$		$		$		$		$		$		
135	1080	...	...	...	....	190	95	8500	7600	3	5000	..	. ..	23	980	8	1400	68	1
395	3160	...	...	...	....	80	40	3300	2970	1	1000	.	.....	28	900	2	280	20	2
1926	16,600	..	...	34	306	825	412	2100	2100	1	500	.	.....	141	5400	8	1200	240	3
901	8608	...	....	8	72	250	125	4900	4400	1	1000	..	.....	37	1675	3	380	80	4
350	2100	1	20	100	500	200	150	2300	2300	1	1000	1	2650	30	4500	4	8000	40	5
300	1800	2	20	20	100	50	38	.....	....	...	....	..	.....	2	150	1	100	.....	6
80	480	...	...	...	. ..	20	15	.....	....	...	.. ..	..	.....	3	300	1	100	. . .	7
25	150	...	....	25	125	50	37	...	.....	...	.....	...	.....	1	100	..	....	.....	8
3855	27315	...	....	1025	6500	730	730	7800	7800	5	4500	3	550	160	2040	40	1250	140	9
7967	61293	3	40	1212	7603	2395	1642	28900	27170	12	13000	4	3200	425	16045	67	12710	588	

RETURN showing the Number of Fishermen, etc., the Number and Value of the Fishing Industry in the County of Cape Breton, province

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.												Fishing.	
		Sailing and Gasolene Vessels.			Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.	
		(10 to 20 ton.) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.
	Cape Breton County.		$			$		$			$			$
1	Little Bras d'Or District	3	900	12	20	400	23	3450	96	2	400	4	90	450
2	Leitches Creek, Long Island and Boisdale				18	280			25				42	210
3	North Sydney to Cranberry Head	7	2100	26	8	150	3	450	20				92	920
4	Sydney, Lingan and Glace Bay	4	2800	16	83	2250	19	5900	178	4	1200	6	329	3290
5	Port Morien and vicinity	4	1800	14	15	1525	38	7350	79	5	1900	12	357	3510
6	Main-à-Dieu and vicinity	3	1800	16	50	3000	30	2600	240	4	1600	8	320	2200
7	Scatari Island				19	1550	15	3360	54	1	800	2	130	1000
8	Louisburg and vicinity				80	3900	15	2500	190	4	1000	8	320	3200
9	Gabarus to Fourchu				85	4700	26	6000	270	2	1000	6	406	3200
	Totals	21	9400	84	378	17765	169	31610	1152	22	7900	46	2080	17980

Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in of Nova Scotia, during the year 1915-16.

Gear.						Canneries.		Other Material.							
Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.		Persons employed in Canneries, Freezers and Fish-houses.	
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	
	$		$		$		$		$		$		$		
41	164	140	50	5000	5000	2	5000	1	1200	30	750	25	1800	73	1
14	140	39	78	.. .	.....	.....	....	....	.....	2	3000	.. .	. . .	....	2
20	80	92	74	300	300	....	.....	2	5000	10	4000	2	25000	18	3
127	859	247	183	4375	4375	2	2500	....	....	.. .	....	4	450	44	4
66	520	174	174	6800	6800	4	3000	. . .	... \..	31	930	6	260	68	5
90	250	770	462	9600	5780	2	4400	....	.....	30	500	95	1150	.....	6
30	300	160	90	1100	900	1	1200	.....	....	20	200	... .	.. .	13	7
20	200	275	138	5300	5300	2	3200	...	. .	.	.....	20	2500	35	8
.....	.....	250	150	4405	4392	4	5600	1	500	26	520	6	700	49	9
408	2513	2147	1399	36880	32847	17	24900	4	6700	149	9900	158	31860	300	

RETURN showing the Number of Fishermen, etc., the Number and Value of the Fishing Industry in the County of Victoria,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.												Fishing.	
		Sailing and Gasolene Vessels.				Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.	
		(20 to 40 tons) Number.	(10 to 20 tons) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.
	Victoria County.			$			$		$			$			$
1	Iona, Washabuck and Little-Narrows	....	....	...	..	48	1200	2	300	35	1	125	1	75	750
2	Baddeck and vicinity	....	....	.....	..	8	175	1	150	9	..	....	..	20	200
3	Big Bras d'Or District	1	....	500	3	54	700	11	1650	70	.	....	..	70	520
4	Englishtown to Breton Cove	....	....	. ....	..	55	1650	4	600	160	2	300	2	170	3400
5	Wreck Cove to Cape Smokey	....	....	... ..	..	85	2550	1	150	100	2	300	4	130	1300
6	Ingonish	...	12	9600	60	119	11210	11	5075	275	..	....	.	317	8500
7	Green Cove to Meat Cove	....	1	500	3	197	7958	35	7200	340	5	1500	10	419	8000
	Totals	1	13	10600	66	566	25443	65	15125	989	10	2225	17	1201	22670

SESSIONAL PAPER No. 39

Vessels and Boats, and the Quantity and value of all Fishing Gear, etc., used in Province of Nova Scotia, during the Year 1915-16.

Gear.						Canneries.		Other Material.						Persons employed in Canneries, Freezers and Fish-houses.	
Trawls.		Hand Lines.		Lobster Traps.		Lobsters Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		Number.
	$		$		$		$		$		$		$		
68	340	90	45	180	135	....	.....	....	... .	....	.....	....	.. ..	....	1
5	40	8	24	.....	.....	....	....	....	.....	....	.....	....	.....	.. ..	2
12	100	112	50	1270	1270	....	.....	....	.....	8	100	....	.....	....	3
35	350	350	175	2000	2000	2	1000	3	300	120	4800	1	2500	20	4
25	250	250	125	500	500	1	400	1	100	18	720	1	3800	12	5
568	3976	136	115	2530	1430	5	1450	6	4150	30	9650	14	81450	200	6
97	1250	919	919	5000	5000	7	6050	6	2050	65	11000	17	8900	94	7
810	6306	1865	1453	11480	10335	15	8000	16	6600	241	26270	33	96650	326	

RETURN showing the Number of Fishermen, etc., the Number and Value of Ves- Fishing Industry in the County of Inverness,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.												Fishing	
		Sailing and Gasolene Vessels.				Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.	
		(20 to 40 tons.) Number.	(10 to 20 tons.) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men	Number.	Value.	Men.	Number.	Value.
	Inverness County.			$			$		$			$			$
1	Pollet's Cove to Pleasant Bay					8	120	29	3200	79	1	350	2	63	3575
2	Cap Rouge, Eastern Harbour, Cheticamp and Grand Etang	3	32	18029	154	41	2216	47	11493	253	4	2450	8	392	4305
3	Friar's Head, Margaree Harbour to Smith's Cove.		4	3600	15	145	9390	69	22150	461	5	1600	5	573	22766
4	Broad Cove, Port Ban to Mabou Harbour					27	810	23	3450	125	2	500	4	265	3630
5	West Lake Ainslie and Whycocomagh Bay					30	700			55				64	304
6	Little Mabou and Port Hood to Hawkesbury					6	180	114	22800	205	9	3150	9	500	4500
7	West Bay, Malagawatch and Deny's Basin					105	1320			107				242	484
	Totals	3	36	21629	169	362	14736	282	63093	1285	21	8050	28	2099	39564

sels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Province of Nova Scotia, during the Year 1915-16.

Gear.								Canneries		Other Material.						Persons Employed in Canneries, Freezers and Fish-houses.	
Weirs.		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Fish-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		Number.
	$		$		$		$		$		$		$		$		
....	....	5	40	80	112	3500	1750	2	1600	6	200	19	475	....	.....	18	1
....	.....	57	1835	814	1019	12330	10999	9	7000	6	2150	18	5650	17	11775	207	2
50	1250	119	1428	1296	1490	6385	6385	7	4600	4	3500	160	16940	19	10900	88	3
....	.. ..	15	150	375	375	4900	4900	2	4500		.....	..	....	3	4500	36	4
....	.....	5	50	75	75	..	.....	....	.....	....	.....	....	...	1	10000	.....	5
....	.....	175	4375	300	300	19300	14475	6	6300	6	271000	2	2500	8	40000	209	6
....	...	62	186	236	59	....	.. .	....	.....	....	.....	14	152	6	72	.....	7
50	1250	438	8064	3176	3430	46415	38509	26	24000	22	276850	213	25717	54	77247	558	

RETURN showing the Quantities and Values of the Fish caught and landed in a Green State in the County of Richmond, Province of Nova Scotia, during the Year 1915-16.

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel value.	Number.
	Richmond County.		$		$		$		$		$		$		$		$	
1	Fourchu, Framboise and vicinity.	7	70	3602	14021	1740	3045	48	60	.....	.. .	72	72	178	178	81	203	1
2	Grand River and vicinity...	46	460	.....	.....	297	5220	24	30	.....	.....	18	18	100	100	135	338	2
3	Point Michaud and L'Ardoise	122	1220	.... .	.....	4089	7156	6029	7537	....	.....	1095	1095	1791	1791	912	2280	3
4	Rockdale and Grand Grève....	38	380	948	3690	315	551	636	795	...	... .	364	364	1857	1857	165	414	4
5	St. Peters and River Bourgeois	.....	....	412	1236	10091	15137	487	566	.....	.....	20	30	1700	1700	95	300	5
6	Louisdale and River Inhabitants....	.....	.....	.....	....	390	592	...	.....	.....	.....	15	15	1000	1000	. . .	. .	6
7	Ports Richmond and Malcolm	....	.....	.....	.....	195	293	.....	.....	.....	.....	.....	.....	498	498	. ..	.....	7
8	West Bay	...	....	.....	.....	220	330	..	...	.....	.....	.. ..	..	124	124	...	.....	8
9	Ile Madame	22	220	2445	7997	12590	15938	32309	36303	895	509	760	400	3095	3530	162	820	9
	Totals.....	235	2350	7407	26944	29927	48262	39533	45291	895	509	2344	1994	10343	10778	1550	4355	

* Cwt. = 100 lbs.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Richmond, Province of Nova Scotia, during the Year 1915-16—*Concluded.*

Number.	Fishing Districts.	Shad, cwt.*	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Eels, cwt.	Eels, value.	Sword-Fish, cwt.	Sword-Fish, value.	Mixed Fish, cwt.	Mixed Fish, value.	Squid, brl.	Squid, value.	Clams, brl.	Clams, value.	Seals, Number.	Seals, value.	Number.
	Richmond County.		$		$		$		$		$		$		$		$		$		$		$	
1	Fourchu, Framboise and vicinity	....	....	5	4	31	310	...	....	1	6	....	..	.....	.....	.....	...	4	8	36	72	11	11	1
2	Grand River and vicinity	....	....	....	....	6	60	....	....	..	.....	....	....	.....	.....	.....	...	.....	.....	...	....	...	...	2
3	Point Michaud and L'Ardoise	56	84	29	22	50	500	8	8	....	..	....	....	170	510	....	....	12	24	2	4	45	45	3
4	Rockdale and Grand Grève	11	17	15	11	19	190	5	5	6	36	....	....	86	258	....	..	..	.....	....	....	....	....	4
5	St. Peters and River Bourgeois	....	....	....	....	41	121	...	....	160	800	20	60	30	120	20	20	.....	.....	..	..	....	....	5
6	Louisdale and River Inhabitants	....	....	....	....	..	....	....	....	288	2016	150	450	...	.....	....	....	.....	.....	..	....	....	....	6
7	Ports Richmond and Malcolm	....	....	....	....	...	....	....	....	.....	.....	....	....	.....	....	....	....	...	.....	....	....	....	..	7
8	West Bay	..	..	....	....	....	....	....	....	.....	.....	....	..	.....	.....	....	....	...	.....	....	....	....	....	8
9	Ile Madame	...	..	102	204	3	15	25	13	203	1015	80	160	750	3000	..	...	440	2510	....	....	....	.	9
	Totals	67	101	151	241	150	1196	38	26	658	3873	250	670	1036	3888	20	20	456	2542	38	76	58	58	

* Cwt. =100 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Richmond**, Province of **Nova Scotia**, during the year 1915--16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Salmon, salted, cwt.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green, salted, cwt.	Cod, dried, † quintals.	Haddock, used fresh, cwt.	Haddock, green-salted, cwt.	Haddock, smoked fillets, cwt.	Haddock, dried, quintals.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, dried, quintals.	Pollock, used fresh, cwt.	Pollock, dried, quintals.	Herring, used fresh, cwt.	Herring, pickled, brl.	Herring, used as bait, brls.	Number.
	Richmond County.																			
1	Fourchu, Framboise and vicinity	7	..	1216	1170	180	.....	520	6	....	..	14	....	.....	.....	24	.....	44	23	1
2	Grand River and vicinity	46	..	....	.....	.....	.....	99	...	.....	...	8	....	...	..	6	...	26	11	2
3	Point Michaud and L'Ardoise	92	20	.....	.....	.....	....	1363	26	.....	..	2001	....	.....	.....	365	.....	511	129	3
4	Rockdale and Grand Grève	38	..	474	...	135	....	60	81	.....	.....	185	..	...	70	98	306	497	30	4
5	St. Peter's and River Bourgeois	.....	.....	206	..	150	...	3363	...	...	...	162	....	.....	25	....	2	400	250	5
6	Louisdale and River Inhabitants	.....	..	....	..	....	....	131	....	....	....	..	.....	....	...	3	..	300	50	6
7	Ports Richmond and Malcolm	.....	.....	....	.....	.....	....	65	.....	.....	.....	..	.....	...	.....	.....	...	166	..	7
8	West Bay	.....	.....	..	.	70	...	...	.....	.....	.....	...	.....	...	.....	.....	.....	...	61	8
9	Ile Madame	22	...	1222	...	1249	650	3347	21663	1375	29	2603	238	219	50	236	...	780	377	9
	Totals	205	20	3118	1170	1781	650	8948	21776	1375	29	4973	238	219	145	732	308	2724	931	
	Rates	15	20	14	8	2	4	6	2	3	8	5	1	4	2	4	2	5	2	
	Values	3075	400	43652	9360	3568	2600	53688	43552	4125	232	21865	238	876	290	2928	616	13620	1862	

* Cwt. = 100 lbs. † Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state for the County of **Richmond**, Province of **Nova Scotia**, during the year 1915--16.—*Concluded.*

Number.	Fishing Districts.	Mackerel, used fresh, cwt.	Mackerel, salted, brls.	Shad, used fresh, cwt.	Shad, salted, brls.	Alewives, used fresh, cwts.	Alewives, salted, brls.	Halibut, used fresh, cwt.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Eels, used fresh, cwt.	Swordfish, used fresh, cwt.	Mixed Fish, used fresh, cwt.	Squid, used as bait, brl.	Clams and quahaugs, used fresh, brl.	Hair seal skins, No.	Fish oil, gal.	Seal oil, gal.	Number.
	Richmond County.																		
1	Fourchu, Framboise and vicinity		27			5		31		1				4	36	11	280	480	1
2	Grand River and vicinity		45					6								12	55		2
3	Point Michaud and L'Ardoise	36	292	20	12	20	3	50	8			170		12	2	45	1175		3
4	Rockdale and Grand Grève	72	31	5	2	3	4	19	5	6		86					46		4
5	St. Peter's and River Bourgeois	35	20					41		160	20	30	20				1200		5
6	Lonisdale and River Inhabitants									288	150						200		6
7	Ports Richmond and Malcolm																100		7
8	West Bay																100		8
9	Ile Madame	72	30				34	3	25	203	80	750		440			1100		9
	Totals	215	445	25	14	28	41	150	38	658	250	1036	20	456	38	58	4256	480	
	Rates	$ 10	12	5	10	1.50	5	10	5	10	5	8	2	5	2	1	35c.	50c.	
	Values	$ 2150	5340	125	140	42	205	1500	190	6580	1250	8288	40	4280	76	58	1490	240	

Total value $241,541

* Cwt. =100 lbs. † Quintal =112 lbs.

THE

RETURN showing the Quantity and Values of all Fish caught and landed during the

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.
	Cape Breton County.		$		$		$		$		$		$
1	Little Bras d'Or District	11	110	2146	6438	2665	5018	350	525	...	...	550	600
2	Leitches Creek, Long Island, and Boisdale	...	...	...	...	135	135	...	...	...	...	460	460
3	North Sydney to Cranberry Head	...	...	135	378	1905	2938	87	103	12	12	2240	2330
4	Sydney, Lingan and Glace Bay	6	60	3226	11795	3185	5574	312	470	12	12	3215	3360
5	Port Morien	33	358	3225	10875	4695	8695	168	183	52	56	2386	2886
6	Main-à-Dieu and vicinity	197	1930	1853	5653	9116	12475	10729	8810	2690	1519	2701	4044
7	Scatarie Island	20	200	440	1400	2044	3066	502	392	170	193	270	265
8	Louisburg and vicinity	241	2892	2820	8460	2150	3745	2105	1792	...	...	492	492
9	Gabarus to Fourchu	..	...	1041	3109	3411	5687	504	467	426	404	4750	4913
	Total	508	5550	14886	48108	29306	47333	14757	12742	3362	2196	17064	19350

*Cwt. = 100 lbs.

SESSIONAL PAPER No. 39

CATCH.

in a Green State in the County of Cape Breton, Province of Nova Scotia, year 1915-16.

Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Sword-fish, cwt.	Sword-fish, value.	Squid, brl.	Squid, value.	Oysters, brl.	Oysters, value.	Clams, brl.	Clams, value.	Seals, number.	Seals, value.	Number.
	$		$		$		$		$		$		$		$		$	$	$	
.....	.....	....	...	....	....	....	.....	...	..	...	....	..	....	...	....	....	..	150	150	1
.....	.....	....	..	....	....	....	.....	7	35	....	..	....	....	....	....	....	...	....	....	2
154	462	....	....	120	120	60	390	....	...	500	2000	....	....	....	.. .	....	....	1500	1500	3
388	2000	..	....	....	....	217	1903	.. .	....	140	560	....	....	14	42	....	....	...	...	4
57	207	....	....	....	...	104	556	13	130	13	45	5	12	....	....	10	50	....	...	5
2042	12540	5	25	....	....	1788	8943	....	....	77	231	28	140	....	....	...	....	....	....	6
32	220	....	....	....	....	90	370	...	...	...	....	18	54	....	....	....	....	....	...	7
105	262	....	...	90	90	5	25	22	144	510	1530	....	....	....	....	....	....	....	....	8
1350	3750	....	....	40	40	....	.....	137	548	...	...	....	....	...	....	..	....	...	....	9
4128	19441	5	25	250	250	2264	12187	179	857	1240	4366	51	206	14	42	10	50	1650	1650	

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish, and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Cape Breton**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, canned, case.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †qtl.	Haddock, used fresh, cwt.	Haddock, dried, qtl.	Pollock, used fresh, cwt.	Pollock, dried, qtl.	Herring, used fresh, cwt.	Herring, pickled brl.	Herring, used as bait, brl.	Number.
	Cape Breton County.														
1	Little Bras d'Or District	11	1073		1015		550	350					50	200	1
2	Leitches Creek, Long Island and Boisdale				135								113	60	2
3	North Sydney to Cranberry Head			135	396	60	463		29		4	26	538	300	3
4	Sydney, Lingan and Glace Bay	6	1113	1000	436	255	746	57	85		4	173	242	1157	4
5	Port Morien	33	1018	1189	489	1223	586	19	49	1	17	33	343	661	5
6	Main-à-Dieu and vicinity	197	659	534	4389		1575	8685	681	975	571	759	629	27	6
7	Scatarie Island	20	35	370	2044			502		170			46	65	7
8	Louisburg and vicinity	241	72	1369	54	359	459	371	578			19	144	20	8
9	Gabarus to Fourchu		503	34	58	173	1002		168		142	350	1416	75	9
	Totals	508	5126	4631	9016	2070	5381	9984	1590	1146	738	1360	3521	2565	
	Rates $	15	14	8	2	4	6	2	5	1	4	2	5	2	
	Values $	7620	71764	37048	18032	8280	32286	19968	7950	1146	2952	2720	17605	5130	

*Cwt. = 100 lbs. †Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish, and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Cape Breton**, Province of **Nova Scotia**, during the year 1915-16.---*Concluded.*

Number.	Fishing Districts.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Halibut, used fresh, cwt.	Smelts, used fresh, cwt.	Swordfish, used fresh, cwt.	Squid, used as bait, brl.	Oysters, used fresh, brl.	Clams and Quahaugs, used fresh brl.	Hair Seal Skins, Number.	Fish Oil, gal.	Seal Oil, gal.	Number.
	County of Cape Breton.															
1	Little Bras d'Or District												150	1000	1200	1
2	Leitches Creek, Long Island and Boisdale							7								2
3	North Sydney to Cranberry Head	40	38			40	60		500				1500	23671	12000	3
4	Sydney, Lingan and Glace Bay	105	94				217		140		14					4
5	Port Morien	14	14				104	13	13	5		10				5
6	Main-à-Dieu and vicinity	1928	38	5			1788		77	28				1000		6
7	Scatarie Island	32					90			18						7
8	Louisburg and vicinity	15	30		90		5	22	510							8
9	Gabarus to Fourchu	300	350			13		137								9
	Totals	2434	564	5	90	53	2264	179	1240	51	14	10	1650	25671	13200	
	Rates.....$	5	14	5	1	5	10	12	5	5	5	5	1	35c.	50c.	
	Values.....$	12170	7896	25	135	265	22640	2148	6200	255	70	50	1650	8985	6600	

Total value ..... $ 301,590

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Victoria, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwts.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Number.
	Victoria County.		$		$		$		$		$		$		$		$	
1	Iona, Washabuck and Little Narrows	38	444	28	44	412	618	.....	.....	.....	.....	.....	.....	100	137	....	.....	1
2	Baddeck and vicinity	19	190	..	.....	259	378	9	14	.....	...	.....	..	262	262	.....	.....	2
3	Big Bras d'Or District	2	24	.....	.....	1,410	2,115	4	6	.....	.....	21	21	849	1,180	4	16	3
4	Englishtown to Breton Cove	80	560	672	1,680	1,134	1,134	.....	.....	.....	.....	90	68	5,800	3,856	102	204	4
5	Wreck Cove to Cape Smokey	8	56	378	945	390	390	.....	.....	.....	.....	.....	.....	.....	.....	30	60	5
6	Ingonish	96	576	672	1,680	12,158	18,162	87,177	87,177	312	241	1,139	934	2,210	2,515	1,110	1,665	6
7	Green Cove to Meat Cove	212	2,120	1,949	5,847	11,947	15,889	7,480	7,102	135	127	398	365	2,849	2,455	287	891	7
	Totals	455	3,970	3,699	10,196	27,710	38,686	94,670	94,299	447	368	1,648	1,388	12,070	10,405	1,533	2,836	

* Cwt. = 100 pounds.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Victoria, Province of Nova Scotia, during the year 1915-16.—*Concluded.*

Number.	Fishing Districts.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Eels, cwt.	Eels, value.	Sword-fish, cwt.	Sword-fish, value.	Squid, brl.	Squid, value.	Oysters, brl.	Oysters, value.	Seals, No.	Seals, value.	Number.
	Victoria County.		$		$		$		$		$		$		$		$	
1	Iona, Washabuck and Little Narrows							23	92					76	228			1
2	Baddeck and vicinity			2	6			1	2					12	36			2
3	Big Bras d'Or District																	3
4	Englishtown to Breton Cove							10	50							224	224	4
5	Wreck Cove to Cape Smokey															150	150	5
6	Ingonish			10	50					821	3,284							6
7	Green Cove to Meat Cove	68	204			1	8	8	24	535	1,458	74	148			170	170	7
	Totals	68	204	12	56	1	8	42	168	1,356	4,742	74	148	88	264	544	544	

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for the County of **Victoria**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon used fresh and frozen, *cwt.	Salmon, salted, cwts.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintal.	Haddock, used fresh, cwt.	Haddock, green-salted, cwt.	Haddock, smoked, cwt.	Haddock, dried, †quintal.	Hake and Cusk, green-salted, cwt.	Hake and Cusk, dried, quintal.	Pollock, used fresh, cwt.	Pollock, green-salted, cwt.	Pollock, dried, quintal.	Number.
	Victoria County.																	
1	Iona, Washabuck and Little Narrows	38	....	....	28	125	85	39	.....	...	...	.	.....	.....	.....	...	...	1
2	Baddeck and vicinity	19	....	.....	.....	87	14	48	.....	..	.....	3	.....	.....	.....	.....	...	2
3	Big Bras d'Or district	2	.....	.....	...	69	.....	447	1	...	...	1	.....	.....	...	..	71	3
4	Englishtown to Breton Cove	80	.....	336	....	.....	.....	378	.....	.....	.....	.....	.....	.....	...	...	30	4
5	Wreck Cove to Cape Smokey	8	.....	189	.....	.....	.....	130	.....	.....	.....	.....	.....	.....	.....	.....	...	5
6	Ingonish	26	.....	336	.....	2300	3284	1096	4150	15516	1051	16631	156	...	.....	244	216	6
7	Green Cove to Meat Cove	158	36	958	33	451	5495	170	286	...	...	2398	...	45	5	.....	131	7
	Totals	401	36	1819	61	3032	8878	2308	4437	15516	1051	19033	156	45	5	244	384	
	Rates $	15	18	14	8	2	4	6	2	3	8	5	3	4	2	3	4	
	Values $	6015	648	25466	488	6064	35512	13848	8874	46548	8408	95165	468	180	10	732	1536	

*Cwt. = 100 lbs. †Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for the County of **Victoria**, Province of **Nova Scotia**, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brls.	Herring, used as bait, brls.	Mackerel, used fresh, cwt.	Mackerel, salted, brls.	Halibut, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Eels, used fresh, cwt.	Swordfish, used fresh, cwt.	Squid, used as bait, brl.	Oysters, used fresh, brls.	Tongues and Sounds, pickled or dried, cwt.	Hair Seal Skins, No.	Fish oil, gals.	Seal oil, gals.	Number.
	Victoria County.																		
1	Iona, Washabuck and Little Narrows	45	5	15	.....	.....	.. .	.....	.....	... .	23	.....	.....	76	.....	.. .	.....	.....	1
2	Baddeck and vicinity	106	.....	50	3	.....	.....	.....	2	.. ..	1	.....	.....	12	....	....	7	....	2
3	Big Bras d'Or District	34	.....	167	157	1	1	... .	....	.. ..	.....	. .	.....	....	.....	...	60	....	3
4	Englishtown to Breton Cove	...	....	298	2422	....	32	.....	.....	.....	10	.....	....	.....	.....	224	189	1792	4
5	Wreck Cove to Cape Smokey	.....	. ...	20	.....	.....	12	...	.....	.....	.....	.....	.....	.....	.....	150	65	1200	5
6	Ingonish	....	.....	350	580	300	270	.....	10	..	.....	821	...	.....	.....	...	.....	.....	6
7	Green Cove to Meat Cove	121	... .	319	885	164	41	68	....	1	8	535	74	.....	.....	18	170	3900 1360	7
	Totals	306	5	1219	4047	465	356	68	12	1	42	1356	74	88	18	544	4221	4352	
	Rates	2	3	5	2	5	14	10	12	10	5	5	3	5	10	1	30c.	50c.	
	Values	612	15	6095	8094	2325	4984	680	144	10	210	6780	222	440	180	544	1266	2176	
	Total value																		$284,739

*Cwt = 100 lbs. †Quintal = 112 lbs.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State, in the County of Inverness, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing District.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Alewives, cwt.	Alewives, value.	Number.
	Inverness County.		$		$		$		$		$		$		$		$		$	
1	Pollet's Cove to Pleasant Bay	230	1725	958	2874	934	1167	56	44	....	.....	42	34	480	638	1275	4200	.....	....	
2	Cap Rouge, Eastern Harbour, Cheticamp and Grand Etang	545	4360	3659	10977	14206	17776	1153	871	1255	816	311	202	4900	7375	6959	29411	...	....	
3	Friar's Head, Margaree Harbour to Smith's Cove	787	5903	2051	5577	10734	14395	6733	6733	..	.	...	...	4445	4445	9527	33266	4330	2315	
4	Broad Cove, Port Ban to Mabou Harbour	255	2040	1594	5100	1281	1963	280	420	.....	.....	50	50	2062	3141	1125	4020	.....	....	
5	West Lake Ainslie and Whycocomagh Bay	...	.....	. ...	.....	100	175	.....	.....	.....	.....	....	....	50	87	.....	.... .	75	75	
6	Little Mabou and Port Hood to Port Hawkesbury	630	5400	5695	17043	15578	20829	26570	36892	5164	3633	. .	..	3665	1890	695	2899	354	177	
7	West Bay, Malagawatch and Deny's Basin	...	.....	.....	.....	729	1093	...	.	.....	....	...	....	150	75	....	. .	...	....	
	Totals	2447	19428	13957	41571	43562	57398	34792	44960	6419	4449	403	286	15752	17651	19581	73796	4759	2567	

*Cwt. = 100 lb.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State, in the County of Inverness, Province of Nova Scotia, during the year 1915-16—*Concluded.*

Number.	Fishing District.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Soles, cwt.	Soles, value.	Eels, cwt.	Eels, value.	Swordfish, cwt.	Swordfish, value.	Mixed Fish (Blackfish), cwt.	Mixed Fish (Blackfish), value.	Squid, brls.	Squid, value.	Oysters, brls.	Oysters, value.	Seals, No.	Seals, value.	Number.
	Inverness County.		$		$		$		$		$		$		$		$		$		$		$	
1	Pollet's Cove to Pleasant Bay	....	...	..	....	..	.....	....	....	....	....	....	.....	124	372	....	.....	....	....	...	....	482	482	1
2	Cap Rouge, Eastern Harbour, Cheticamp and Grand Etang	80	400	....	..	....	.....	4	32	....	....	178	890	65	225	....	... ..	65	130	....	...	....	....	2
3	Friar's Head, Margaree Harbour to Smith's Cove	...	...	...	....	....	.....	..	....	....	....	....	.....	...,	... .	....	....	....	....	....	...	45	45	3
4	Broad Cove, Port Ban to Mabou Harbour	....	.....	....	...	45	225	....	....	....	....	....	....	....	.....	....	. ...	5	10	..	....	....	....	4
5	West Lake Ainslie and Whycocomagh Bay	....	.....	....	....	....	.....	10	30	...	....	...	....	....	.....	....	. ...	....	....	....	....	....	....	5
6	Little Mabou and Port Hood to Port Hawkesbury	304	1477	60	30	172	1546	...	...	40	80	72	144	463	1852	100	1050	222	444	....	....	....	...	6
7	West Bay, Malagawatch and Deny's Basin	....	.. .	....	..	....	.....	....	....	....	...	....	. ..	....	. ..	....	.....	....	....	260	780	....	...	7
	Totals	384	1877	60	30	217	1771	14	62	40	80	250	1034	652	2449	100	1050	292	584	260	780	527	527	

Cwt. = 100 lb.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of Inverness, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Salmon, canned, cases.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintals.	Haddock, used fresh, cwt.	Haddock, green-salted, cwt.	Haddock, smoked, cwt.	Haddock, dried, quintals.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, smoked, cwt.	Hake and Cusk, dried, quintals.	Pollock, green-salted, cwt.	Pollock, dried, quintals.	Herring, used fresh cwt.	Herring, smoked, cwt.	Number.
	Inverness County,																			
1	Pollet's Cove to Pleasant Bay	230	....	479	....	.....	452	10	.....	28	.....	.....	.....	.....	..	21	....	..	..	1
2	Cap Rouge, Eastern Harbour, Cheticamp and Grand Etang	534	13	1829	....	73	6257	539	22	....	.. ..	.....	.....	.....	418	..	103	49	....	2
3	Friar's Head, Margaree Harbour to Smith's cove	787	....	1011	27	.....	5367	.....	.....	3366	....	....	..	....	...	...	...	1080	....	3
4	Broad Cove, Port Ban to Mabou Harbour	255	...	775	44	100	160	287	280	.....	.....	...	...	....	...	...	16	...	...	4
5	West Lake Ainslie, and Whycocomagh Bay	.. ..	....	....	....	37	....	21	....	....	....	....	....	....	....	....	....	....	....	5
6	Little Mabou and Port Hood to Port Hawkesbury	630	....	2769	157	10336	171	1633	17338	..	3986	420	124	666	1236	....	....	955	460	6
7	West Bay, Malagawatch and Deny's Basin	.....	....	.....	...	411	159	.....	.	....	.....	....	....	..	...	...	..	50		7
	Totals	2436	13	6863	228	10957	12566	2496	17610	3394	3986	797	124	666	1654	21	119	2114	460	
	Rates.....$	15	8	14	8	2	4	6	2	3	8	5	1	5	3·50	3	4·50	2	3	
	Values.....$	36540	104	96082	1824	21914	50264	14940	35280	10182	31888	3985	124	3330	5789	63	535	4228	1380	

*Cwt. = 100 lbs. †Quintals. = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Inverness**, Province of **Nova Scotia**, during the Year 1915-16.—*Concluded.*

Number.	Fishing District.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh cwt.	Mackerel, salted, brl.	Alewives, salted, brl.	Halibut, used fresh, cwt.	Flounders, used fresh cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Soles, used fresh, cwt.	Eels, used fresh, cwt.	Swordfish, used fresh, cwt.	Squid, used as bait, brl.	Oysters, used fresh brl.	Tongues and Sounds, pickled or dried, cwt.	Hair seal skins, No.	Fish oil, gal.	Seal oil, gal.	Number.
	Inverness County.																			
1	Pollet's Cove to Pleasant Bay	120	60	...	425	....	...	....	....	...	....	.....	124	....	.....	...	482	.....	3856	1
2	Cap Rouge, Eastern Harbour Cheticamp and Grand Etang	917	1050	37	2307	...	80	....	....	4	....	178	65	65	....	8	....	6195	....	2
3	Friar's Head, Margaree Harbour to Smith's Cove	1000	182	540	2995	1443	....	....	....	....	....	....	....	.	.....	....	45	.....	360	3
4	Broad Cove, Port Ban to Mabou Harbour	513	261	.....	375	...	...	....	45	.....	....	....	.....	5	.....	..	...	490	...	4
5	West Lake Ainslie and Whycocomagh Bay	16	...	.....	...	25	....	..	...	10	..	..	.....	.....	.....	....	.	.....	.....	5
6	Little Mabou and Port Hood to Port Hawkesbury	166	655	380	105	118	304	60	172	..	40	72	463	222	.....	18	....	19000	...	6
7	West Bay, Malagawatch and Deny's Basin	.....	50	.....	.....	....	....	....	.	...	...	.....	....	....	260	....	....	.....	.....	7
	Totals	2732	2258	957	6207	1586	384	60	217	14	40	250	652	292	260	26	527	25685	4216	
	Rates $	5	2	5	14	5	10	6	12	10	5	5	5	3	5	10	1	35c.	50c.	
	Values $	13660	4516	4785	86898	7930	3840	360	2604	140	200	1250	3260	876	1300	260	527	8990	2108	

Total values $461,956

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 1, Province of Nova Scotia, during the year 1915-16.

Kinds of Fish.	Caught and Landed in a Green State.		Marketed.		Total Marketed Value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Salmon cwt.	3,645	31,298			
" used fresh "			3,550	53,250	
" canned cases.			13	104	
" salted (dry) cwt.			56	1,048	
					54,402
Lobsters "	39,949	126,819			
" canned cases			16,926	236,964	
" shipped in shell cwt.			6,090	48,720	
					285,684
Cod "	130,505	191,679			
" used fresh "			24,789	49,578	
" green—salted "			24,164	96,656	
" dried "			19,127	114,762	
					260,996
Haddock "	183,752	197,292			
" used fresh "			53,837	107,674	
" green—salted "			20,285	60,855	
" smoked (finnans) "			5,037	40,296	
" " (fillets) "			29	232	
" dried "			26,393	131,965	
					341,022
Hake "	7,761	5,326			
" used fresh "			362	362	
" smoked "			666	3,330	
" dried "			6,918	6,845	
" green—salted "			156	468	
					11,005
Pollock "	7,757	5,864			
" used fresh "			1,296	1,446	
" green—salted "			265	795	
" dried "			1,973	7,951	
					10,192
Herring "	55,221	58,184			
" used fresh "			4,088	8,176	
" smoked "			465	1,395	
" pickled brls.			10,196	50,980	
" used as bait "			9,801	19,602	
					80,153
Mackerel cwt.	26,792	100,428			
" used fresh "			4,071	21,430	
" salted brls.			7,572	105,118	
					125,548
Shad cwt.	72	126			
" used fresh "			30	150	
" salted brls.			10	140	
					290
Alewives cwt.	5,160	3,058			
" used fresh "			118	177	
" salted brls.			1,680	8,400	
					8,577
Halibut, used fresh cwt.	2,866	15,464	2,866		28,660
Flounders "	98	56	98		550
Smelts "	1,066	6,557	1,066		11,476
Trout "	15	70	15		150
Soles "	40	80	40		200
Eels "	542	1,872	542		2,710
Swordfish "	4,284	15,445	4,284		24,528

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 1, Province of Nova Scotia, during the year 1915-16—*Concluded.*

Kinds of Fish.		Caught and Landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	$
Mixed Fish	cwt.	120	1,070	20*		40
Squid	brls.	873	3,480	873		5,633
Oysters	"	362	1,086	362		1,810
Clams	"	48	126			
" used fresh	"			48		126
Tongues and Sounds	cwt.			44		440
Hair Seals	No.	2,779	2,779			
" Skins	"			2,779		2,779
Fish Oil	gall.			59,833		20,731
Seal Oil	"			22,248		11,124
Totals			768,159			1,289,826

* The Blackfish included in the catch were used for making oil.

RECAPITULATION.

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in District No. 1, Province of Nova Scotia, for the year 1915-16.

—	Number.	Value.
		$
Steam fishing vessels (tonnage)		
Sailing and gasoline vessels	111	71,379
Boats (sail)	2,530	92,469
" (gasoline)	619	138,653
Carrying Smacks	71	24,100
Gill nets, seines, trap and smelt nets, etc.	13,347	141,507
Weirs	53	1,290
Trawls	2,868	24,486
Hand lines	9,583	7,924
Lobster traps	123,675	108,861
" canneries	70	69,900
Freezers and ice-houses	46	293,350
Smoke and fish-houses	1,028	77,932
Fishing piers and wharves	312	218,467
		1,270,318

Number of men employed on vessels	567
" " boats	5,001
" " carrying smacks	134
" persons employed in fish-houses, freezers, canneries, etc.	1,772
Total	7,474

DISTRICT

RETURN showing the Number of Fishermen, etc., the Number and Value of the Fishing Industry in the County of Cumberland,

Number	Fishing Districts.	Vessels, Boats and Carrying Smacks.												Gill Nets, Seines, Trap and Smelt Nets, etc.	
		Steam Vessels.				Boats.					Carrying Smacks.				
		Number.	Tons.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.
	Cumberland County.			$			$		$			$			$
1	From Colchester Co line to including Cape Cliff also including Wallace River	..	..	..	..	27	1080	88	12975	148	..	..	..	17	330
2	From Cape Cliff to and including Port Philip, River Philip and Pugwash River	..	..	..	..	.....	.....	83	15250	60	..	..	..	99	1060
3	From Port Philip to Westmorland County line	..	..	..	..	.....	....	30	4500	30	..	..	..	33	500
4	From Fort Lawrence to Cape Chignecto	..	..	..	..	2	50	2	500	12	..	..	..	6	40
5	From Cape Chignecto to Colchester County line	..	..	..	..	20	600	89	2750	77	..	..	..	25	209
	Totals	..	..	..	..	49	1730	211	35975	327	..	..	..	180	2139

RETURN showing the Number of Fishermen, etc., the Number and Value of the Fishing Industry in the County of Cumberland,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.					Fishing			
		Boats.					Gill Nets, Seines, Trap and Smelt Nets, etc.		Weirs.	
		Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Number.	Value.
	Colchester County.		$		$			$		$
1	Straits of Northumberland	2	70	6	900	8	13	325	....	....
2	Cobiquid Basin including Stewiacke River	131	2675	3	375	160	154	2900	3	150
	Totals	133	2745	9	1275	168	167	3225	3	150

No. 2.

Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in Province of Nova Scotia, during the Year 1915-16

Fishing Gear.								Canneries.		Other Material.					
Weirs.		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Persons Employed in Canneries, Freezers and Fish-houses.	
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		Number.
	$		$		$		$		$		$		$		
....	....	...	.....	....	.....	31148	28227	14	26365	.....	....	6	110	206	1
....	....	...	.....	....	.....	15600	15600	11	11700	... .	.....	2	4000	50	2
2	100	...	....	...	.....	9500	6500	9	1200	.....	... .	8	4000	90	3
2	150	....	.....	24	12	50	50	.....	.....	.....	.....	.....	.....	....	4
8	600	....	.. ...	53	53	125	125	.....	.....	1	1000	...	.....	3	5
12	850	....	....	77	65	56423	50502	34	39265	1	1000	16	8110	349	

Vessels and Boats and the Quantity and Value of all Fishing Gear, etc., used in Province of Nova Scotia, during the Year 1915-16.

Gear.						Canneries.				Other Material.					
Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Clam Canneries.		Freezers and Ice-houses		Smoke and Fish-houses.		Persons Employed in Canneries, Freezers and Fish-houses.	
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		Number.
	$		$		$		$		$		$		$		
....	.	...	.....	2000	2000	2	1350	.. ..	.....	.....	.....	.....	.....	11	1
6	240	.. .	....	....	.....	.....	.... .	1	300	1	100	3	60	2	2
6	240	....	...	2000	2000	2	1350	1	300	1	100	3	60	13	

RETURN showing the Number of Fishermen, etc., the Number and Value of the Fishing Industry in the County of **Pictou**,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.								Fishing	
		Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.	
		Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.
	Pictou County.		$		$			$			$
1	Antigonish County line to Pictou Harbour including East Branch St. Mary's River	23	1005	47	8200	125	1	400	2	243	11111
2	Pictou Harbour and Pictou Island	10	380	53	9450	72	4	5800	6	148	1175
3	From Pictou Harbour to Colchester Co. line	21	525	107	14900	128	2	200	2	105	800
	Totals	54	1910	207	32550	325	7	6400	10	496	13086

RETURN showing the Number of Fishermen, etc., the Number and Value of the Fishing Industry in the County of **Antigonish**,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.											Fishing	
		Sailing and Gasoline Vessels.			Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.	
		(10 to 20 tons) No.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.
	Antigonish County.		$			$		$			$			$
1	From Guysboro County line to and including Antigonish Harbour	2	800	6	55	1450	36	5200	126	7	1800	7	650	8420
2	From Antigonish Harbour to and including South Side of Cape George	.....	.....	....	33	670	29	2900	73	3	600	3	170	2600
3	From Cape George to Pictou County line	.....	....	....	13	240	14	1950	36	2	500	2	112	1500
	Totals	2	800	6	101	2360	79	10050	235	12	2900	12	932	12520

Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in Province of Nova Scotia, during the year 1915-16.

Gear.						Canneries.		Other Material.						Persons Employed in Canneries, Freezers and Fish Houses.	
Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice Houses.		Smoke and Fish Houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		Number.
	$		$		$		$		$		$		$		
19	133	57	29	11100	8905	3	3300	20	3875	16	320	1	1500	75	1
....	.....	54	27	16400	13200	6	20600	.....	.....	...	.....	....	.....	106	2
...	.....	98	72	28206	24656	10	18800	...	....	....	.....	.....	.....	186	3
19	133	209	128	55706	46761	19	42700	20	3875	16	320	1	1500	367	

Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in Province of Nova Scotia, during the year 1915-16.

Gear.						Canneries.		Other Material.						Persons Employed in Canneries, Freezers, and Fish Houses.	
Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice Houses		Smoke and Fish Houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		Number.
	$		$		$		$		$		$		$		
110	550	220	110	15000	11175	2	3000	3	2500	90	900	2	4000	92	1
60	300	70	35	13400	6700	2	3000	1	1000	19	300	...	...	69	2
40	200	50	25	6900	4820	2	2400	2	2200	23	415	....	.....	46	3
210	1050	340	170	35300	22695	7	8400	6	5700	132	1615	2	4000	207	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the County of Guysborough, Province of Nova Scotia, during the Year 1915-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.												Fishing Gear.						
		Sailing and Gasolene Vessels.				Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.		Weirs.		Trawls.		
		(20 to 40 tons.) Number.	(10 to 20 tons. Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.
	Guysborough County.			$			$		$			$			$		$		$	
1	Ecum Secum and Marie Joseph					52	1100	31	4600	75	2	300	2	150	700	2	50	66	420	1
2	Liscomb and Gegoggin		1	1200	8	49	1000	32	4000	71	1	200	1	138	600			25	200	2
3	St. Mary's Bay and River					8	250	8	1100	15				48	300			10	100	3
4	Wine Harbour and Port Hillford					33	700	2	300	42	1	100	1	150	750			25	200	4
5	From Port Hillford to and including Port Beckerton					20	606	18	4500	50				323	2150			109	850	5
6	Fisherman's Harbour and Country Harbour					23	500	12	3000	44	1	500	2	234	1570			21	200	6
7	Isaac's Harbour and Drum Head		2	1100	7	26	2300	35	9700	95	9	2600	17	450	4500			190	1900	7
8	From Drum Head to and including Larry's River		4	2000	14	100	6275	61	18750	235	4	1100	8	1913	19430			268	2680	8
9	From Larry's River to and including Port Felix		14	7800	55	182	10900	29	8200	183	2	705	4	1922	19220			327	3270	9
10	Whitehead Raspberry and Dover	1	12	12100	53	136	6500	23	5950	129	5	1500	5	1303	13030			265	2650	10
11	Canso and Canso Tittle	3	18	21500	96	161	6700	43	15000	152	12	3700	15	2089	20890			570	5700	11
12	From Canso Tittle to and including Philip's Harbour		1	440	5	96	5250	20	3900	121	2	700	4	1720	17200			190	1900	12
13	Queensport		1	430	5	46	2800	9	1650	51	3	900	5	589	5890			89	890	13
14	From Queensport to and including Cook's Cove					118	5600	4	1050	139				1400	14000			193	1930	14
15	Guysboro and Manchester					18	600	2	350	21	1	80	1	276	2760			18	180	15
16	From Guysboro to and including Sand Point					114	4440			112	1	150	1	1695	16950			146	1460	16
17	From Sand Point to Antigonish County Line					45	2400	3	900	50	3	8600	8	986	9860			16	160	17
		5	52	46570	243	1227	57915	335	82950	1588	47	21135	74	15416	150160	2	50	2528	24690	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the County of **Guysborough**, Province of **Nova Scotia**, during the Year 1915-16—*Concluded.*

Number.	Fishing Districts.	Fishing Gear.				Canneries				Other Material.						Persons employed in Canneries, Freezers and Fish houses.	Number.
		Hand Lines.		Lobster Traps.		Lobster Canneries.		Clam Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
		Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	Guysborough County.		$		$		$		$		$		$		$		
1	Ecum Secum and Marie Joseph	104	52	3000	3000					4	200	50	800	10	600		1
2	Liscomb and Gegoggin	114	57	2800	2800	1	1200			3	150	51	850	8	300	18	2
3	St. Mary's Bay and River	30	15	800	800			1	100	6	400	12	200	1	50	2	3
4	Wine Harbour and Port Hillford	72	36	1500	1500					2	200	30	750				4
5	From Port Hillford to and including Port Beckerton	112	56	2800	2800					8	600	24	1000	9	450		5
6	Fisherman's Harbour and Country Harbour	82	41	1070	1070	1	800			1	100	17	450	6	300	16	6
7	Isaac's Harbour and Drum Head	136	136	6600	6600	2	1800			5	7500	41	5000	17	16000	75	7
8	From Drumhead to and including Larry's River	972	972	10000	10000					2	2000	108	17050	32	12200	12	8
9	From Larry's River to and including Port Felix	556	556	3700	3700	1	500					86	7160	45	19400	19	9
10	Whitehead Raspberry and Dover	370	370	9200	9200	3	4200			2	8000	53	12560	34	17800	101	10
11	Canso and Canso Tittle	1000	1000	7500	7500	2	2700			9	90000	56	18050	31	16000	150	11
12	From Canso Tittle to and including Philip's Harbour	236	236	5000	5000	1	500			8	26300	60	16030	4	7000	16	12
13	Queensport	98	98	3000	3000	1	2000					14	2500			10	13
14	From Queensport to and including Cook's Cove	227	227	2500	2500					3	1400	64	11550	6	10075	4	14
15	Guysboro and Manchester	26	26	600	600							16	2600				15
16	From Guysborough to and including Sand Point	161	161	2300	2300							66	13950				16
17	From Sand Point to Antigonish County Line	90	90	1010	1010	2	4000			3	15000	16	2316	3	14700	60	17
		4386	4129	63380	63380	14	17700	1	100	56	151850	764	112816	206	114875	513	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the County of Halifax, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.														Number.
		Sailing and Gasolene Vessels.					Boats.					Carrying Smacks.				
		(40 tons and over) Number.	(20 to 40 tons) Number.	(10 to 20 tons) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.		
	Halifax County.				$			$		$			$			
1	Lunenburg County Line to Head of Margaret's Bay	1			6500	20	135	2700	4	1200	82	1	200	2	1	1
2	From Head of Margaret's Bay to Indian Harbour	1		2	6000	23	232	9150	4	800	140	1	300	2	2	2
3	Indian Harbour and Peggy's Cove	1	1	9	7500	44	250	14000	58	12900	182	2	500	4	4	3
4	Dover			13	6500	44	382	11350	4	1500	137	1	200	2	4	4
5	Prospect		1	1	1200	10	103	3400	4	1000	91					5
6	Terence Bay		3	5	5500	35	210	8200	18	4400	143	1	400	3	6	6
7	Pennant		1	8	4500	30	27	700	3	900	30					7
8	Sambro		3	6	9500	35	60	4500	19	2850	26	1	5000	4	8	8
9	Ketch Harbour		1	2	3000	15	52	4000	5	1500	60					9
10	Portuguese Cove						73	4600	8	3000	40					10
11	Herring Cove and Ferguson's Cove	1		2	3500	18	98	1960	5	1000	98					11
12	Bedford, Grand Lake and Halifax		1		3500	7	29	685			36					12
13	Dartmouth, Devil's Island and Eastern Passage			1	1000	3	60	1600	31	5500	67					13
14	From Eastern Passage to and including Three Fathom Harbour	1			6000	18	56	945	9	1355	50					14
15	West and East Chezzetcook	2			5000	34	127	1835	7	1285	90					15
16	Petpeswick Harbour and Musquodoboit Harbour						79	1250	43	6895	88	2	270	4	16	16
17	Jeddore		3	1	2775	28	83	1155	41	6600	94	1	125	2	17	17
18	Clam Harbour to and including West Ship Harbour		2	3	4800	25	82	2005	17	2320	75	1	400	2	18	18
19	East Ship Harbour to Tangier						1	10	45	8015	106					19
20	Pope's Harbour and Gerrard's Island			1	600	3	2	42	16	2360	41					20
21	Spry Bay and Taylor's Head			4	1600	12	28	1295	19	2470	107					21
22	Sheet Harbour and Sober Island			4	2800	15	5	125	15	3396	47					22
23	Beaver Harbour and Port Dufferin						4	210	7	1105	19					23
24	Quoddy and Harrigan Cove			1	600	4	5	105	4	570	17					24
25	Moser River to Ecum Secum						8	315	15	1125	44					25
	Totals	7	16	63	82375	423	2,191	76137	401	74040	1908	11	7395	25		

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the County of Halifax, Province of Nova Scotia during the year 1915-16.—*Concluded.*

Number.	Fishing Districts.	Fishing Gear.								Canneries.		Other Material.						Persons employed in Canneries, Freezers and Fish-houses.	Number.
		Gill Nets.		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
		Number.	Value.	Number.	Value.	Number.	Value.	Lobster.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	Halifax County.		$		$		$		$		$		$		$		$		
1	Lunenburg County Line to Head of Margaret's Bay	1200	18000	50	1350	300	150	1500	750	....	.....	6	1200	60	8500	60	4500	16	1
2	From Head of Margaret's Bay to Indian Harbour	2160	2950	90	2200	309	150	2300	1150	...	.....	3	1000	72	11000	72	5600	5	2
3	Indian Harbour and Peggy's Cove	2810	22000	255	7950	312	156	3300	1650	....	.....	3	450	68	10600	54	4050	7	3
4	Dover	3130	50500	325	4500	400	200	5100	2550	...	.....	3	1400	61	8000	60	3600	6	4
5	Prospect	1900	25860	70	1750	210	105	3100	1550	1	400	2	1200	35	10500	36	4700	2	5
6	Terrence Bay	990	12500	275	3450	240	12	4800	2400	1	700	3	1250	50	7500	50	2500	6	6
7	Pennant	349	5250	35	740	30	15	1900	950	....	.....	2	30	12	2400	12	900	.....	7
8	Sambro	915	9630	125	1980	210	105	3000	1500	1	2000	3	1300	20	3000	21	2500	20	8
9	Ketch Harbour	245	3830	69	990	175	87	300	150	....	.....	2	1250	25	3000	14	1500	....	9
10	Portuguese Cove	511	6080	40	560	76	38	890	445	...	..	....	....	19	2850	20	1500	.....	10
11	Herring Cove and Ferguson's Cove	175	5065	125	2720	175	87	1100	550	....	.....	....	....	27	4400	27	2200	....	11
12	Bedford, Grand Lake and Halifax	56	1488	13	65	30	15	300	150	....	....	6	30000	15	33000	6	62000	260	12
13	Dartmouth, Devil's Island and Eastern Passage	277	1100	76	1050	225	113	2800	1400	....	.....	....	..	56	6000	27	800	.....	13
14	From Eastern Passage to and including Three Fathom Harbour	259	1036	2	50	140	70	2200	1100	....	....	..	.....	66	1535	10	750	.....	14
15	West and East Chezetcook	631	2624	5	100	286	143	2825	1413	....	..	....	.....	35	800	13	900	.....	15
16	Petpeswick Harbour and Musquodoboit Harbour	279	1084	4	70	180	90	2750	1375	2	2150	....	.....	42	925	19	650	19	16
17	Jeddore	382	1444	8	175	200	100	3000	1500	2	3000	....	..	46	950	14	700	24	17
18	Clam Harbour to and including West Ship Harbour	371	2214	....	.....	322	111	5200	2600	2	2000	2	260	36	1550	21	1700	12	18
19	East Ship Harbour to Tangier	434	1736	...	..	215	107	4500	3600	..	.....	....	..	41	1285	29	1381	20	19
20	Pope's Harbour and Gerrard's Island	204	816	3	70	86	43	2500	2000	1	500	....	.....	15	362	10	335	10	20
21	Spry Bay and Taylor's Head	685	2740	6	95	221	110	4000	3500	1	400	1	50	21	725	14	440	17	21
22	Sheet Harbour and Sober Island	226	904	8	130	118	68	2000	1600	..	..	1	75	22	470	15	280	12	22
23	Beaver Harbour and Port Dufferin	46	104	3	60	41	21	3000	2100	2	2000	1	50	9	156	5	55	16	23
24	Quoddy and Harrigan Cove	35	140	3	20	46	23	4000	3500	1	1000	..	....	6	89	4	110	15	24
25	Moser River to Ecum Secum	115	460	8	66	62	31	3500	2800	2	1500	....	.....	20	275	8	120	20	25
	Totals	18385	179555	1598	30141	4600	2258	69865	42583	16	15650	38	39465	879	119872	621	103771	487	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the County of Hants, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.					Fishing Gear.							
		Boats.					Gill Nets, Seines, Trap and Smelt Nets, etc.		Weirs.		Trawls.		Hand Lines.	
		Sail.	Value.	Gasoline.	Value.	Men.	Number	Value.	Number	Value.	Number	Value.	Number	Value.
	Hants County.		$		$			$		$		$		$
1	Hantsport to and including Tennycape.	10	875	6	1309	32	19	348	3	300	.....	....	34	25
2	From Tennycape to Maitland including Shubenacadie river ..	63	565	....	.....	81	130	880	5	350	2	10	67	17
		73	1440	6	1300	113	149	1228	8	650	2	10	101	42

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Cumberland, Province of Nova Scotia, during the year 1915-16.

Number	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Oysters, brl.	Oysters, value.	Number.
	Cumberland County.		$		$		$		$		$		$		$		$		$		$		$		$		$		$		$		$	
1	From Colchester Co. Line to and including Cape Cliff also including Wallace River			10778	43112									328	246					525	525					123	615	3	21	375	1875	1
2	From Cape Cliff to and including Port Philip, River Philip and Pugwash River			5677	22708									4400	3300					601	601					249	1245	2	14	200	1000	2
3	From Port Philip to Westmorland Co. Line			3358	13432			20	30					9350	4675					20	20					143	715	1	7			3
4	From Fort Lawrence to Cape Chignecto	8	80	200	800	213	320	20	30			25	25	70	70			200	1000	48	48							1	7			4
5	From Cape Chignecto to Colchester Co. Line	33	330	250	1000	1624	2436	613	920	111	111	2301	2301	80	80	9	36					44	220	13	13			2	14			5
	Totals	41	410	20263	81052	1837	2756	653	980	111	111	2326	2326	14228	8371	9	36	200	1000	1194	1194	44	220	13	13	515	2575	9	63	575	2875	

*Cwt. = 100 lbs.

THE CATCH MARKETED—*Continued.*

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc. state, for the County of **Cumberland**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintals.	Haddock, used fresh, cwt.	Haddock, smoked, cwt.	Haddock, dried, quintals.	Hake and Cusk, dried, quintals.	Pollock, used fresh, cwt.	Pollock, dried, quintals.	Herring, used, fresh, cwt.	Herring, smoked, cwt.	Number.
	Cumberland County.															
1	From Colchester Co. line to and including Cape Cliff, also including Wallace River	...	5389	...	...	...	...	...	...	...	...	...	...	...	...	1
2	From Cape Cliff to and including Port Philip, Philip River and Pugwash River	...	2822	33	...	...	...	...	...	...	...	...	...	...	2000	2
3	From Port Philip to Westmorland Co. line	...	1669	20	...	...	...	20	...	...	...	...	...	...	4350	3
4	From Fort Lawrence to Cape Chignecto	8	...	200	107	53	...	20	...	...	...	25	...	40	...	4
5	From Cape Chignecto to Colchester Co. line	33	...	250	610	480	18	195	50	106	37	300	667	15	...	5
	Totals	41	9880	503	717	533	18	235	50	106	27	325	667	55	6350	
	Rates ...$	15	15	10	2.50	3.50	6.50	2	6	4.50	4	1 50	4	2	3	
	Values ...$	615	148200	5030	1792	1866	117	470	300	477	148	488	2668	110	19050	

*Cwt. = 100 lbs. †Quintal = 112 lbs.

THE CATCH MARKETED—Concluded.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Cumberland**, Province of **Nova Scotia**, for the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Herring, pickled, brl.	Herring, used as bait, brl.	Herring, used as fertilizer, brl.	Mackerel, salted, brl.	Shad, used fresh, cwt.	Shad, salted, brl.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Halibut, used fresh cwt.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Oysters, used fresh, brl.	Number.
	Cumberland County.														
1	From Colchester Co. line to and including Cape Cliff, also including Wallace River		164					525				123	3	375	1
2	From Cape Cliff to and including Port Philip, Philip River and Pugwash River		200					10	197			249	2	200	2
3	From Port Philip to Westmorland Co. line		125	200				20				143	1		3
4	From Fort Lawrence to Cape Chignecto	10				200		48					1		4
5	From Cape Chignecto to Colchester Co. line	15	10		3					44	13		2		5
	Totals	25	499	200	3	200		603	197	44	13	515	9	575	
	Rates $	4.50	1.75	50c	14	10		2	4	10	5	8	10	7	
	Values $	112	873	100	42	2000		1206	788	440	65	4120	90	4025	

Total Value $195,192

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Colchester, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Bass, cwt.	Bass, value.	Oysters, brl.	Oysters, value.	Clams, brl.	Clams, value.	Number.
	Colchester County.		$		$		$		$		$		$		$		$		$		$		$		$		$	
1	Straits of Northumberland	....	....	346	1,384	....	....	....	....	....	....	....	....	....	....	....	....	70	420	....	....	.	....	20	100	....	....	1
2	Cobequid Basin, including Stewiacke River.....	223	2,230	....	....	191	286	11	11	159	159	470	2,350	870	1,740	4	20	5	30	8	56	6	30	....	....	50	50	2
	Totals.....	223	2,230	346	1,384	191	286	11	11	159	159	470	2,350	870	1,740	4	20	75	4 0	8	56	6	30	20	100	50	50	

* Cwt. = 100 pounds.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Colchester**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, canned, cases.	Cod, used fresh, cwt.	Cod, dried, †quintals.	Pollock, used fresh, cwt.	Pollock, dried, †quintals.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brl.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Halibut, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Bass, used fresh, cwt.	Oysters, used fresh, brl.	Clams and quahaugs, used fresh, brl.	Clams and quahaugs, canned, case.	Number.
	Colchester County.																			
1	Straits of Northumberland	.....	173	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70	.....	.....	20	.....	.....	1
2	Cobequid Basin including Stewiacke Riv.	223	.....	116	25	2	3	30	24	27	470	870	4	5	8	6	.....	10	40	2
	Totals	223	173	116	25	2	3	30	24	27	470	870	4	75	8	6	20	10	40	
	Rates ....$	15	15	2.50	6 50	1.50	4	2	3	4.50	10	2	10	8	10	10	7	2	4.50	
	Values....$	3345	2595	290	163	3	12	60	72	122	4700	1740	40	600	80	60	140	20	180	
	Total value																			$14,222

*Cwt. = 100 lbs. †Quintal = 112 lbs.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Pictou, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and cusk, cwt.	Hake and cusk, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Alewives, cwt.	Alewives, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Bass, cwt.	Bass, value.	Eels, cwt.	Eels, value.	Oysters, brl.	Oysters, value.	Number.
	Pictou County.		$		$		$		$		$		$		$		$		$									
1	Antigonish County line to Pictou Harbour, including East Branch St. Mary's River	1194	14328	3457	13828	154	231	22	28	270	270	2061	1546	20	100	50	63	422	2110	10	70	..	..	150	600	..	..	1
2	Pictou Harbour and Pictou Island	....	.....	4480	17920	131	197	32	40	75	75	1185	889	20	100	20	25	183	915	6	42	15	75	10	40	..	..	2
3	From Pictou Harbour to Colchester Co. Line	...	.....	9894	39576	40	165	60	75	210	210	2240	2130	4	20	10	12	69	300	3	21	..	..	..	..	80	400	3
	Totals	1194	14328	17831	71324	395	593	114	143	555	555	6086	4565	44	220	80	100	665	3325	19	133	15	75	160	640	80	400	

THE CATCH MARKETED.

39—82

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled canned, etc., state for the County of **Pictou** Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, * cwt.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Haddock, used fresh, cwt.	Hake and cusk, dried, quintals.	Herring, used fresh, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Alewives, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Bass, used fresh, cwt.	Eels, used fresh, cwt.	Oysters, used fresh, cwt.	Number.
	Pictou County.																	
1	Antigonish Co. line to Pictou Harbour including East Branch of St. Mary's River.	1194	1713	31	154	22	90	924	145	351	20	50	422	10	. . .	150	.....	1
2	Pictou Harbour and Pictou Island	.. ..	2235	10	131	32	25	160	125	325	20	20	183	6	15	10	.....	2
3	From Pictou Harbour to Colchester Co., line	.....	4942	10	110	60	70	480	40	1120	4	10	60	3	.....	.....	80	3
	Totals	1194	8890	51	395	114	185	1564	310	1796	44	80	665	19	15	160	80	
	Rates $	15	15	10	2.50	2	4	2	4.50	1.75	7	2	8	10	10	5	7	
	Values $	17910	133350	510	987	228	740	3128	1395	3143	308	160	5320	190	150	800	560	

Total Value $168,879

* Cwt. = 100 lbs. † Quintal—112 lbs.

THE

RETURN showing the Quantities and Values of all Fish caught and landed in a the year

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and cusk, cwt.	Hake and cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.
	Antigonish County.		$		$		$		$		$		$	
1	From Guysborough County Line, to and including Antigonish Harbour.	1407	14070	3746	11238	3864	5796	22	22	120	120	40	40	2774
2	From Antigonish Harbour to and including the South Side of Cape George	345	3450	3670	11010	808	1212	70	70	750	750	....	....	1281
3	Cape George to Pictou County Line.	200	2000	1730	5190	1013	1520	329	329	2241	2241	...	....	1198
	Totals	1952	19520	9146	27438	5685	8528	421	421	3111	3111	40	40	5253

* Cwt.=100 lb.

SESSIONAL PAPER No. 39

CATCH.

Green State in the County of **Antigonish**, Province of Nova Scotia, during 1915–16.

Herring, value.	Mackerel, cwt.	Mackerel, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Bass, cwt.	Bass, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Mixed fish, cwt.	Mixed fish, value.	Squid, brl.	Squid, value.	Oysters, brl.	Oysters, value.	Number.
$		$		$		$		$		$		$		9		$		$		$	
2080	82	410	4	12	245	1225	8	56	70	350	140	420	20	60	250	250	40	120	549	2196	1
961	59	295	....	....	12	60	1	7	10	50	..	....	....	....	10	10	8	24	....	....	2
899	51	255	..	...	....	....	1	7	20	100	....	...	....	....	20	20	6	18	....	....	3
3940	192	960	4	12	257	1285	10	70	100	500	140	420	20	60	280	280	54	162	549	2196	

THE CATCH

RETURN showing the Quantities and Values of all Fish and Fish Products marketed Province of Nova Scotia,

Number.	Fishing Districts	Salmon, used fresh and frozen, cwt.*	Lobsters, canned, cases.	Cod, used fresh, cwt.	Cod, dried, †quintals.	Haddock, used fresh, cwt.	Haddock, dried, quintals.	Hake and Cask, dried, quintals.	Pollock, used fresh, cwt.	Herring, used fresh, cwt.
	Antigonish County.									
1	From Guysborough County line to and including Antigonish Harbour	1407	1873	75	1263	13	3	40	40	35
2	From Antigonish Harbour to and including South Side of Cape George	345	1835	64	248	70	....	250	....	43
3	Cape George to Pictou County Line	200	865	47	322	134	65	747	....	48
	Totals	1952	4573	186	1833	217	68	1037	40	126
	Rates	$ 15	15	2.50	6.50	2	4.50	4	1.50	2
	Values	$ 29280	68595	465	11914	434	306	4148	60	252
	Total Value									

*Cwt. = 100 lbs. †Quintal = 112 lbs.

MARKETED.

in a fresh, dried, pickled, canned, etc., state, for the County of Antigonish, during the year 1915--1916.

Herring, pickled, brl.	Herring, used as bait, brl.	Herring, used as fertilizer, brl.	Mackerel, used fresh, cwt.	Mackerel, salted, brls.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Bass, used fresh, cwt.	Eels, used fresh, cwt.	Tom-cod, used fresh, cwt.	Mixed fish, used fresh, cwt.	Squid, used as bait, brl.	Oysters, used fresh, brl.	Tongues and Sounds, pickled or dried, cwt.	Fish oil, gal.	Number.
113	1050	150	37	15	4	245	8	70	140	20	250	40	549	1	200	1
96	475	....	17	14	....	12	1	10	....	.....	10	8	. ..	1	100	2
96	431	....	6	15	....	.....	1	20	....	. ..	20	6	...	2	200	3
305	1956	150	60	44	4	257	10	100	140	20	280	54	549	4	500	
4.50	1 75	50c.	7	14	5	8	10	10	5	5	1.50	5	7	5	40c.	
1372	3423	75	420	616	20	2056	100	1000	700	100	420	276	3843	20	200	

..... $130,089

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Guysborough, Province of Nova Scotia, during the Year 1915-16.

Number.	Fishing Districts.	Salmon, cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Number.
	Guysborough County.		$		$		$		$		$		$		$		$		$	
1	Ecum Secum and Marie Joseph	6	60	726	4356	1347	2691	15	15	...	.....	6	6	1913	1430	48	240	...	...	1
2	Liscomb, Spanish Ship Bay and Gegoggin	20	200	789	4734	2079	4158	18	18	....	.....	9	9	2023	1517	.....	.....	...	...	2
3	St. Mary's Bay and River	55	550	197	1182	330	660	..	.....	...	...	...	....	546	409	33	165	...	.....	3
4	Wine Harbour and Port Hilford	14	140	278	1668	399	798	....	.....	.....	.....	.....	...	1585	1189	66	330	.....	..	4
5	From Port Hilford to and including Beckerton	5	50	711	4266	1839	3678	66	66	6	5	15	15	2966	2224	1212	6060	.	.....	5
6	Fisherman's Harbour and Country Harbour	14	140	1216	7296	489	978	9	9	.....	.....	.....		2373	1780	702	3510	....	.....	6
7	Isaac's Harbour and Drum Head	8	80	3644	18220	13135	19702	28	285	81	65	585	468	4700	3525	892	3568	.		7
8	From Drum Head to and including Larry's River	4	40	..	.....	3654	5481	93	936	105	84	1476	1181	1900	1425	495	1980	....	.....	8
9	From Larry's River to and including Port Felix	.....	....	81	405	2558	3837	1680	1680	660	528	1035	828	1250	937	336	1344	....	....	9
10	Whitehead, Raspberry and Dover	3	30	3277	16385	1930	2895	5090	5090	120	96	837	670	1888	1416	330	1320	....	...	10
11	Canso and Canso Tittle	169	1690	2951	1475	29010	43515	55122	55122	2688	2150	2280	1824	5252	3939	1111	4456	1	3	11
12	From Canso Tittle to and including Port Philip	.....	.....	520	2600	3698	5547	6505	6505	864	691	1119	1135	2000	1500	330	1320	.....	.....	12
13	Queensport	50	500	1537	7685	4450	6675	5520	5520	375	300	720	624	3400	2550	350	1400	.....	....	13
14	From Queensport to and including Cook's Cove	.....	...	.....	..	781	1171	96	96	69	55	735	588	854	624	78	312	....	....	14
15	Guysborough and Manchester	60	600	....	...	76	114	36	36	12	10	45	36	108	81	.....	.....	.....	.....	15
16	From Guysborough to and including Sand Point	80	800	.	.....	68	102	45	45	15	12	48	38	210	156	....	.....	.....	...	16
17	From Sand Point to Antigonish Co. Line	75	750	594	2970	1030	1540	11392	11392	1	14	54	44	194	147	. .	.....	.....	.....	17
	Landed throughout the County but not apportioned to Districts	. . .	.	.....	.....	. ..	.	.....	.	..	.....	.....	.....	... ..	... .	.....	.....	.....	.. ...	
	Totals	563	5630	16521	86522	66873	103551	86815	86815	5913	4010	9324	7466	33142	24849	5986	26005	1	3	

*Cwt. = 100 lbs.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the County of Guysborough Province of Nova Scotia, during the Year 1915-16—*Concluded.*

Number.	Fishing Districts.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Eels, cwt.	Eels, value.	Swordfish, cwt.	Swordfish, value.	Squid, brl.	Squid, value.	Clams, brl.	Clams, value.	Hair Seals, number.	Hair Seals, value.	Number.
	Guysborough County.		$		$		$		$		$		$		$		$		$	
1	Ecum Secum and Marie Joseph	.....	.....	30	150	8	40	1	7	35	140	.....	.....	.....	.....	12	12	4	4	1
2	Liscomb, Spanish Ship Bay and Gegoggin	21	21	28	140	33	165	2	14	4	16	....	.....	.....	.....	10	10	2	2	2
3	St. Mary's Bay and River	...	....	...	.....	30	150	2	14	16	64	....	.....	.....	.....	81	81	.....	.....	3
4	Wine Harbour and Port Hilford	....	....	...	.....	35	175	1	7	....	.....	15	60		.....	.....	.....	.....	.....	4
5	From Port Hilford to and including Beckerton	.....	.....	39	195	.....	....	4	28	4	16	85	340	.....	.....	18	18	....	.....	5
6	Fisherman's Harbour and Country Harbour	.....	.....	..	...	.....	..	2	14	.....	.....	32	128	.....	.....	7	7	2	2	6
7	Isaac's Harbour and Drum Head	....	....	175	1050	..	..	2	1	..	.....	240	960	.....	.....	.....	.....	.....	.....	7
8	From Drum Head to and including Larry's River	.....	...	56	336	90	630	1	7	30	120	310	1240	.....	.....	.....	.....	.....	.....	8
9	From Larry's River to and including Port Felix	60	60	87	522	..	....	4	28	6	24	485	1940	...	.....	.....	.....	.....	.....	9
10	Whitehead, Raspberry and Dover	150	150	475	2850	..	.....	6	42	45	180	400	1600	.....	.....	.....	.....	.....	.....	10
11	Canso and Canso Tittle	210	210	4798	28788	.....	.....	8	56	.....	..	1470	5880	950	3800	...	....	.....	.....	11
12	From Canso Tittle to and including Port Philip	30	30	17	102	.....	.....	..	.....	5	20	35	140	.....	.....	.....	.....	.....	.....	12
13	Queensport	....	...	25	150	....	.....	.....	.....	.....	.....	.. ..	.....	500	2000	....	.. ..	....	...	13
14	From Queensport to and including Cook's Cove	27	27	4	24	.....	.....	2	14	7	28	.....	.....	.....	.....	.....	.....	.....	.....	14
15	Guysborough and Manchester	36	36	...	.....	18	126	..	....	2	8	....	....	.....	.....	.....	.....	.....	.....	15
16	From Guysborough to and including Sand Point	24	24	....	.....	54	378	8	42	4	16	... ..	.....	.....	.....	.....	.....	.. ..	.....	16
17	From Sand Point to Antigonish Co. Line	.....	.....	...	..	.....	.....	3	21	3	12	....	....	782	3128	.....	.....	.....	.....	17
	Landed throughout the County but not apportioned to Distri ts.	.....	....	....	..	....	.....	.....	.....	.. ..	.....	2950	11800	.....	.. ..	.....	.....	.....	... ..	
	Totals	558	558	5734	34307	268	1664	41	308	161	644	6022	24088	2232	8928	128	128	8	8	

*Cwt. = 100 lbs.

THE CATCH

RETURN showing the Quantities and Value of all Fish and Fish Products of Guysborough, Province of Nova

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Salmon, canned, cases.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green salted, cwt.	Cod, dried, †qtl.	Haddock, used fresh, cwt.	Haddock, smoked, cwt.	Haddock, dried, qtl.	Hake and Cusk, dried, qtl.	Pollock, dried, qtl.
	Guysborough County.												
1	Ecum Secum and Marie Joseph	6			726			449			5		2
2	Liscomb, Spanish Ship Bay and Gegoggin	20		91	607			693			6		3
3	St. Mary's Bay and River	55			197			110					
4	Wine Harbour and Port Hilford	14			278			133					
5	From Port Hilford to and including Beckerton	5			711			613			22	2	5
6	Fisherman's Harbour and Country Harbour	14		374	468			163			3		
7	Isaac's Harbour and Drum Head	8		1038	1568		2963	2403			95	27	195
8	From Drum Head to and including Larry's River	4					513	876			312	35	492
9	From Larry's River to and including Port Felix			36	9	80	474	510			560	220	345
10	Whitehead, Raspberry and Dover	3		929	1419	650	310	220	1269	1273	425	40	279
11	Canso and Canso Tittle	143	31	956	1041	15346	2932	2600	33153	2163	5881	896	760
12	From Canso Tittle to and including Port Philip			160	200		760	726	1372		1711	288	473
13	Queensport	50		761	15	1350	500	700	960	1050	820	125	260
14	From Queensport to and including Cook's Cove						335	37			32	23	245
15	Guysborough and Manchester	60					20	12			12	4	15
16	From Guysborough to Sand Point	80					16	12			15	5	16
17	From Sand Point to Antigonish Co. line	75		297		1000	9	4	8560	1386	20	6	18
	Landed in county but not apportioned to Districts												
	Totals	537	31	4642	7239	18426	8832	10261	45314	5872	9919	1671	3108
	Rates	15	8	15	10	2 50	3 50	6 50	2	6	4 50	4	4
	Values	8055	248	69630	72390	46065	30912	66697	90628	35232	44636	6684	12432

Total value

* Cwt. = 100 lbs.
† Quintal = 112 lbs.

MARKETED.

Marketed in a fresh, dried, pickled, canned, etc., state for the County Scotia, during the year 1915-16.

Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Alewives, salted,	Halibut, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Eels, used fresh, cwt.	Swordfish, used fresh, cwt.	Squid, used as bait, brl.	Clams and Quahaugs, used fresh. brl	Clams and Quahaugs, canned, case.	Hair Seal skins, No.	Fish oil, gals.	Seal oil, gals.	Number.
573	97	.....	16	...	....	....	30	8	1	35	.....	....	12	....	4	510	100	1
605	104	.....	.....	....	21	....	28	33	2	4	.....	.....	10	.	2	600	50	2
162	30	....	11	....	....	....	....	30	2	16	... .	. ..	. .	81	..	130	....	3
475	80	... .	22	....	....	....	.... .	35	1	....	15	...	....	....	..	400	....	4
322	1000	.....	404	...	....	....	39	.....	4	4	85	.....	18	....	...	500	....	5
265	789	.....	234	....	....	....	...	.....	2	....	32	.....	7	....	2	160	50	6
1100	700	250	214	....	..	...	175	....	2	....	240	.....	...	....	....	4500	....	7
380	380	.....	165	....	....	....	56	90	1	30	310	.....	....	....	...	2050	....	8
210	310	.....	112	...	...	20	87	.....	4	6	485	....	...	...	....	1950	....	9
230	599	300	10	..	....	50	475	.....	6	45	400	.....	....	....	....	2245	....	10
500	1876	1114	....	1	....	70	4798	.. ..	8	....	1470	950	....	....	....	25400	....	11
250	625	. .	110	..	...	10	17	.....	.. .	5	35	.....	....	....	...	3900	....	12
300	1250	350	.....	....	....	....	25	.....	....	....	.....	500	....	....	....	3575	....	13
50	342	.....	26	....	....	9	4	.....	2	7	.....	....	....	....	....	532	....	14
6	45	. ....	.....	....	....	12	.. .	18	....	2	.....	.....	....	....	....	40	....	15
10	90	... .	....	....	...	8	.....	54	8	4	.....	.....	....	....	....	50	....	16
4	91	.....	.....	....	....	..	.....	. ...	3	3	.. .	782	....	....	....	2800	....	17
.....	....	.....	.....	....	....	....	.....	.....	....	....	2950	....	....	....	....	.. .	...	
5442	8408	2614	1324	1	21	179	5734	268	46	161	6022	2232	47	81	8	49342	200	
4 50	1 75	7	14	10	2	4	10	8	10	5	5	5	2	4 50	1 25	49c.	40c.	
24489	14714	14098	18536	10	42	716	57340	2144	460	805	30110	11160	94	364	10	19736	80	

..... $678,517

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught in a Green State in the County of Halifax, Province of Nova Scotia, during the Year 1915-16.

Number.	Fishing Districts.	Salmon, cwt*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Number.
	Halifax County.		$		$		$		$		$		$		$		$		$		$	
1	Lunenburg County Line to and including Head Margaret's Bay.	32	384	300	3000	1700	2550	1620	2025	1800	1800	900	900	2168	1626	1836	11016	...	...	20	20	1
2	From Head of Margaret's Bay to Indian Harbour.	21	252	450	1500	3200	4800	3590	4488	1500	1500	1200	1200	3775	2831	3454	20724	....	..	10	10	2
3	Indian Harbour and Peggy's Cove.	60	720	700	7000	5750	8625	4998	6247	2850	2850	1500	1500	3810	2857	5336	32016	....	....	15	15	3
4	Dover	78	936	800	8000	1300	6450	4305	5381	2400	2400	1800	1800	4116	3087	6100	36600	..	...	60	60	4
5	Prospect	48	576	385	3850	3060	4590	2320	2900	750	750	1200	1200	2725	2044	2714	16284	...	....	6	6	5
6	Terrence Bay.....	8	96	520	5200	5100	7650	4148	5185	2700	2700	1110	1110	4175	3131	1916	11496	....	....	25	25	6
7	Pennant.....	27	324	200	2000	3185	4778	2358	2948	1500	1500	750	750	1877	1408	720	4320	....	...	40	40	7
8	Sambro	33	396	670	6700	3866	5799	2500	3125	1200	1200	750	750	1734	1300	515	3090	....	....	8	8	8
9	Ketch Harbour.	25	300	200	2000	2683	4024	1974	2468	900	900	270	270	1925	1444	1225	7350	....	....	70	50	9
10	Portuguese Cove..	27	182	230	2300	531	797	390	487	60	60	219	219	1495	1121	650	3900	..	....	17	17	10
11	Herring Cove and Ferguson Cove.	52	621	407	4070	4008	6012	4090	5113	2202	2202	900	900	3540	2655	2732	16392	....	...	12	12	11
12	Bedford, Grand Lake and Halifax.	10	120	12	120	100	150	1340	1675	.. .	.....	21	21	87	65	28	168	160	1600	63	63	12
13	Dartmouth, Eastern Passage and Devils Island	1	12	1300	7800	2320	3480	1120	1400	....	.....	339	339	1850	1387	230	1380	....	..	12	12	13
14	From Eastern Passage to and including Three Fathom Harbour.	9	108	550	3300	2267	3401	90	112	....	....	96	96	2983	2237	107	642	....	....	17	17	14
15	West and East Chezetcook ..	.....	.....	....	.....	6557	9835	154	193	.....	. ..	114	114	4632	3474	200	1200	....	....	5	5	15
16	Petpeswick Harbour and Musquodoboit Harbour.	21	252	510	3060	4644	6966	523	654	19	19	1004	1004	4302	3226	188	1128	..	. .	8	8	16
17	Jed tore	2	24	1671	10026	7135	10703	386	483	60	60	1080	1080	11446	8584	340	2040	.	.....	.....	.....	17
18	From and including Clam Harbour to and including West Ship Harbour.	7	84	2218	13308	3005	4507	147	184	855	855	102	102	5293	3970	159	954	....	....	7	7	18

19	East Ship Harbour and Tangier.	2	20	498	2988	2435	3653	239	239	.. ...	.....	456	456	6929	5197	649	3245	....	....	....	....	19
20	Pope's Harbour and Gerrard's Island.	....	.....	243	1458	1445	2168	119	119	.....	.....	84	84	4844	3633	983	4915	....	....	....	...	20
21	Spry Bay and Taylor Head..	10	100	997	5982	3185	4778	171	171	72	72	441	441	9136	6852	1011	5055	....	...	...	....	21
22	Sheet Harbour and Sober Island	35	350	337	2022	1137	1706	45	45	756	756	33	33	3718	2789	162	810	...	....	...	....	22
23	Beaver Harbour and Port Dufferin.	.....	....	1005	6030	588	882	39	39	12	12	39	39	580	435	24	120	....	....	....	....	23
24	Quoddy and Harrigan Cove....	12	120	2483	14898	657	986	24	24	12	12	36	36	226	169	17	85	.	....	....	..	24
25	Moser River to Ecum Secum..	7	70	944	5664	1173	1760	48	48	18	18	60	60	1750	1312	69	345	....	....	....	....	25
	Totals.....	500	5868	17630	125276	74031	111050	36738	45753	19666	19666	14504	14504	89116	66834	31365	185275	160	1600	375	375	

*Cwt.=100 lbs.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught in a Green State in the County of Halifax, Province of Nova Scotia, during the Year 1915-16.—*Concluded.*

Number.	Fishing Districts.	Soles, cwt.	Soles, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Albacore, cwt.	Albacore, value.	Skatewings, cwt.	Skatewings, value.	Eels, cwt.	Eels, value.	Swordfish, cwt.	Swordfish, value.	Mixed Fish, cwt.	Mixed Fish, value.	Sand, brl.	Squid, value.	Oysters, brl.	Oysters, value.	Clams, brl.	Clams, value.	Hair Seals, number	Hair Seals, value.	Number
			$		$		$		$		$		$		$		$		$		$		$		$		$		$	
1	Lunenburg County Line to and including Head Margaret's Bay.	75	38	836	5852	250	750	...	....	45	315	1840	3680	113	57	100	300	70	280	250	250	70	140	..	..	80	120	..	..	1
2	From Head of Margaret's Bay to Indian Harbour.	80	40	1120	7840	240	720	.. .	....	30	210	1500	3000	100	50	106	318	60	240	250	250	95	190	.	..	90	135	.	.	2
3	Indian Harbour and Peggy's Cove.	55	27	1800	12600	110	330	....	....	7	49	900	1800	68	34	40	120	80	320	190	190	90	180	.	..	82	123	..	..	3
4	Dover	95	48	1370	9590	415	1245	....	...	31	217	1100	2200	112	56	120	360	80	320	300	300	65	130	..	..	105	158	..	..	4
5	Prospect.....	30	15	400	2800	150	450	.	...	15	105	1000	2000	30	15	60	180	50	200	60	60	30	60	.	..	76	114	..	..	5
6	Terence Bay.....	90	45	900	6300	200	600	....	...	30	210	1000	2000	100	50	65	195	60	240	400	400	70	140	.	..	55	83	..	..	6
7	Pennant	25	12	800	5660	35	105	...	....	9	63	600	1200	20	10	5	15	40	160	20	20	15	30	..	..	25	38	..	..	7
8	Sambro	30	15	700	4900	30	90	...	....	6	42	600	1200	30	15	3	9	20	80	120	120	12	24	..	..	20	30	..	..	8
9	Ketch Harbour.....	5	3	600	4200	20	60	....	....	4	28	400	800	20	10	8	24	60	240	15	15	11	22	..	..	21	30	..	..	9
10	Portuguese Cove.....	7	4	200	1400	30	90	....	...	5	35	600	1200	20	10	10	30	26	104	40	40	9	18	..	..	34	51	..	..	10
11	Herring Cove and Ferguson Cove.	35	17	960	6720	35	105	....	....	6	42	900	1800	500	250	15	45	80	320	100	100	31	62	..	..	50	75	..	..	11
12	Bedford, Grand Lake and Halifax.	28	14	.....	..	30	90	....	....	31	238	.....	.....	....	....	72	216	....	...	....	...	2	4	..	..	77	116	..	..	12
13	Dartmouth, Eastern Passage and Devils Island.	...	....	145	725	20	60	.	....	....	....	.....	.....	..	....	4	12	95	380	....	....	....	....	..	..	85	85	..	..	13
14	From Eastern Passage to and including Three Fathom Harbour.	...	....	8	40	40	120	160	800	5	35	.....	....	....	..	6	18	....	....	...	....	....	....	..	..	286	286	..	..	14
15	West and East Chezeteook.	....	....	10	50	38	114	107	535	6	42	....	...	....	....	13	39	.	....	....	..	....	..	..	..	3110	3110	..	..	15
16	Petpeswick Harbour and Musquodoboit Harbour.	...	....	54	270	40	120	248	1240	13	91	.....	.....	....	. .	12	36	5	20	...	...	..	....	6	30	2000	2000	..	..	16
17	Jeddore	...	....	64	320	20	60	3	15	3	21	.. .	....	....	....	5	15	3	12	..	....	....	....	.	..	60	60	..	..	17
18	From and including Clam Harbour to and including West Ship Harbour.	....	...	74	370	33	99	8	40	10	70	6	12	...	....	7	21	35	140	....	....	....	....	.	..	1220	1220	..	..	18

19	East Ship Harbour and Tangier.	...	....	26	130	....	...	....	....	12	84	.....	.....	....	....	10	30	...	....	....	....	2	6	..	..	8	8	..	..	19
20	Pope's Harbour and Gerrard's Island.	....	....	13	65	...	...	....	....	3	21	.....	.....	....	....	...	..	...	....	...	....	...	...	..	..	6	6	..	..	20
21	Spry Bay and Taylor Head.	....	....	17	85	....	...	....	...	13	91	.....	.....	...	..	8	24	....	....	....	...	...	..	..	..	5	5	..	..	21
22	Sheet Harbour and Sober Island.	....	....	45	225	....	....	25	125	15	105	.....	..	...	....	10	30	..	....	....	....	3	9	..	..	6	6	..	..	22
23	Beaver Harbour and Port Dufferin.	....	...	10	50	....	...	....	..	7	49	..	.....	....	....	..	....	5	20	...	....	..	.....	..	.	2	2	10	10	23
24	Quoddy and Harrigan Cove.	....	...	9	45	....	....	10	50	10	70	.....	.....	....	...	11	33	..	....	...	...	...	...	..	..	3	3	..	..	24
25	Moser River to Ecum Secum.	....	....	10	50	..	....	11	55	7	49	.....	.....	....	....	....	...	4	16	....	....	..	...		..	4	4	..	..	25
	Totals	555	278	10171	70227	1736	5208	572	2860	326	2282	10446	20892	1113	557	690	2070	773	3092	1745	1745	505	1015	6	30	7510	7868	10	10	

*Cwt. = 100 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state for the County of Halifax, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, * cwt.	Salmon, smoked, cwt.	Lobster, canned cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, dried, † quintals.	Haddock, used fresh, cwt.	Haddock, smoked, cwt.	Haddock, dried, quintals.	Hake and Cusk, dried quintals.	Pollock, used fresh, cwt.	Pollock, dried, quintals.	Herring, used fresh, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Number.
	Halifax County.																		
1	Lunenburg County line to and including the Head of Margarets Bay	15	10		300	500	400	1000	10	200	600		300	150	606	100	1056	260	1
2	From Head of Margarets Bay to Indian Harbour	10			450	800	800	1500	25	680	500		400	225	1000	275	2800	218	2
3	Indian Harbour to Peggy's Cove	50	6		700	1250	1500	2300	20	886	950		500	370	900	370	4700	212	3
4	Dover	68	6		800	700	1200	1600	25	885	800		600	472	900	472	5500	200	4
5	Prospect	40	5		385	600	820	800	10	500	250		400	225	700	200	2444	90	5
6	Terence Bay	8		10	500	900	1400	1428	10	900	900		370	375	1000	400	1540	124	6
7	Pennant	25	1		200	425	920	700	4	550	500		250	175	450	176	600	40	7
8	Sambro	30	2	260	150	830	1012	993	3	500	400		250	178	400	178	500	5	8
9	Ketch Harbour	22	2		200	550	711	950	2	310	300		90	125	450	225	1000	75	9
10	Portuguese Cove	27			230	300	77	270		40	20		73	195	370	95	620	10	10
11	Herring Cove and Ferguson's Cove	50			407	750	1086	1690		800	734		300	280	900	280	2600	44	11
12	Bedford Grand Lake and Halifax	10	1		12	100		19	661				7	29		29	28		12
13	Dartmouth, Eastern Passage and Devil's Island	1			1300	550	590	580		180		15	108	30	300	460	140	30	13
14	From Eastern Passage to and including Three Fathom Harbour	9			550	11	752	6		28			32	10	943	72	7	33	14
15	West and East Chezetcook					17	2180	10		48			38	15	1399	210	8	64	15
16	Petpeswick Harbour and Musquodoboit Harbour	21		96	318	60	1528	28		165	6	2	334	11	1357	110	8	60	16
17	Jeddore	2		448	775	25	2370	20		122	20		360	6	3720	140	10	110	17
18	Clam Harbour to and including West Ship Harbour	7		514	1190	11	998	9		46	285		34	6	1589	260	3	52	18
19	East Ship Harbour to Tangier	2			498	35	800	17		74			152	15	2288	25	16	211	19
20	Pope's Harbour and Gerrard's Island				240	20	475	14		35			28	12	1604	10	7	325	20
21	Spry Bay and Taylor's Head	10		336	325	35	1050	21		50	24		147	30	3022	20	21	330	21
22	Sheet Harbour and Sober Island	20	9		337	18	373	15		10	252		11	12	1208	41	12	50	22

23	Beaver Harbour and Port Dufferin	...	.....	295	415	18	190	9	.....	10	4	.....	13	15	185	5	6	6	23
24	Quoddy and Harrigan Cove	12	.....	898	687	9	216	.....	.....	8	4	.....	12	6	70	5	2	5	24
25	Moser River to Ecum Secum	7	.....	372	200	12	387	9	.....	13	6	.....	20	15	575	5	9	20	25
	Totals	446	49	3229	11169	8526	21835	13988	770	7070	6555	17	4829	2982	25936	4163	23639	2574		
	Rates	15	20	15	10	2.50	6.50	2	6	4·50	4	1.50	4	2	4.50	1.75	7	14		
	Values	6690	980	48435	111690	21315	141928	27976	4620	31815	26220	25	19316	5964	116712	7285	165473	36036		

* Cwt. = 100 lbs. † Quintal = 112 lbs.

THE CATCH MARKETED,

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state for the County of **Halifax**, Province of **Nova Scotia**, during the year 1915-16—*Continued*.

Number.	Fishing Districts.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Soles, sold fresh.	Halibut, used fresh, cwt.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Albacore, used fresh, cwt.	Skate wings, used fresh, cwt.	Eels, used fresh, cwt.	Sword Fish, used fresh, cwt.	Mixed Fish, used fresh, cwt.	Squid, used as bait, brl.	Oysters, used fresh, brl.	Clams and Quahaugs, used fresh, brl.	Tongues and Sounds, pickled or dried, cwt.	Hair Seal skins, No.	Fish Oil, gal.	Number.
	Halifax County.																			
1	Lunenburg County line to and including the Head of Margarets Bay	.....	20	75	836	250	.....	45	1840	113	100	70	250	70	...	80	12	...	1800	1
2	From Head of Margarets Bay to Indian Harbour	.....	10	80	1120	240	....	30	1500	100	106	60	250	95	....	90	17	....	2800	2
3	Indian Harbour to Peggy's Cove	....	15	55	1800	110	.....	7	900	68	40	80	190	90	...	82	21	....	5000	3
4	Dover	.....	60	95	1370	415	.....	31	1100	112	120	80	300	65	...	105	42	....	4257	4
5	Prospect	.....	6	30	400	150	.....	15	1000	30	60	50	60	30	....	76	15	...	2416	5
6	Terrence Bay	...	25	90	900	200	.....	30	1000	100	65	60	400	70	....	55	33	....	4346	6
7	Peanant	....	40	25	800	35	.....	9	600	20	5	40	20	15	....	25	6	...	2595	7
8	Sambro	...	8	30	700	30	...	6	600	30	3	20	120	12	....	20	5	....	2769	8
9	Ketch Harbour	.....	50	5	600	20	...	4	400	20	8	60	15	11	....	21	4	....	1941	9
10	Portuguese Cove	.....	17	7	200	30	..	5	600	20	10	26	40	9	....	34	4	....	400	10
11	Herring Cove and Ferguson's Cove	.....	12	35	960	35	.....	6	900	500	15	80	100	31	....	50	17	....	3733	11
12	Bedford Grand Lake and Halifax	160	63	28	.....	30	... ..	34	.....	.....	72	...	.....	2	....	77	.....	.....	.....	12
13	Dartmouth, Eastern Passage and Devil's Island	.....	12	.....	145	20	.....	.....	...	.....	4	95	....	.....	....	85	.....	...	960	13
14	From Eastern Passage to and including Three Fathom Harbour	.....	17	... ..	8	40	160	5	. ...	....	6	....	.....	.....	....	286	... .	....	668	14
15	West and East Chezetcook	.....	5	.....	10	38	107	6	.....	.....	13	.....	.....	..	....	3110	.....	....	1538	15
16	Petpeswick Harbour and Musquodoboit Harbour	.....	8	.. ..	54	40	248	13	...	. ..	12	5	....	. ...	6	2000	.....	...	1561	16
17	Jeddore	.....	....	.....	61	20	3	3	. ..	. . .	5	3	....	.....	....	60	.....	....	2110	17
18	Clam Harbour to and including West Ship Harbour	... .	7	.....	74	33	8	10	6	.....	7	35	....	.....	....	1220	.....	. .	854	18
19	East Ship Harbour to Tangier	....	...	.....	26	.....	.....	12	. . ..	.... .	10	.....	.....	2	....	8	13	....	1295	19
20	Pope's Harbour and Gerrard's Island	.....	....	.....	13	.....	.....	3	.....	.....	. .	.....	.....	.....	....	6	6	....	472	20
21	Spry Bay and Taylor's Head	.....	....	. ....	17	.....	. . .	13	.....	....	8	.....	.....	.....	....	5	10	...	1129	21
22	Sheet Harbour and Sober Island	.....	....	.....	45	.....	25	15	.....	.. ..	10	.....	.... .	3	....	6	8	....	499	22

23	Beaver Harbour and Port Dufferin	...	....	.....	10	.....	.....	7	.	.....	....	5	... ..	.....	...	2	.. .	10	161	23
24	Quoddy and Harrigan Cove	. .	....	.....	9	.....	10	10	.....	....	11	. ...	.....	....	....	3	..	...	110	24
25	Moser River to Ecum Secum	.....	....	....	10	...	11	7	.....	.....	....	4	.....	.. .	....	4	.....	...	153	25
	Totals	160	375	555	10171	1736	572	326	10446	1113	690	773	1745	505	6	7510	213	10	43567	
	Rates	10	2	3	10	5	8	10	3	1	5	5	1.50	5	7	2	5	1.25	.40c	
	Values	1600	750	1665	101710	8680	4576	3260	31338	1113	3450	3865	2617	2525	42	15020	1065	12	$17426	

Total value $973,194

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State, in the County of Hants, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Cod, cwt.	Cod, value.	Herring, cwt.	Herring, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Trout, cwt.	Trout, value.	Bass, cwt.	Bass, value.	Clams, brl.	Clams, value.	Number.
	Hants County.		$		$		$		$		$		$		$		$		$	
1	From Hantsport to, and including Tennycape...	50	550	80	160	50	75	48	336	2000	3000	15	75	....	....	....	....	..	....	1
2	Tennycape to Maitland, including Shubenacadie River.....	85	935	110	220	25	37	329	2303	1421	2131	.....	.....	8	56	23	115	12	18	2
	Totals	135	1485	190	380	75	112	377	2639	3121	5131	15	75	8	56	23	115	12	18	

Cwt. = 100 lb.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Hants**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Herring, used fresh, cwt.	Herring, pickled, brl.	Shad, used fresh, cwt.	Shad, salted, brl.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Halibut, used fresh, cwt.	Trout, used fresh, cwt.	Bass, used fresh, cwt.	Clams and Quahaugs, used fresh, brl.	Number.
	Hants County.														
1	Hantsport to and including Tennycape	50	80	.....	50	.....	48	.....	2,000	.....	15	.....	.....	.....	1
2	Tennycape to Maitland, including Shubenacadie River	85	40	35	16	3	170	53	1,130	97	.....	8	23	12	2
	Totals	135	120	35	66	3	218	53	3,130	97	15	8	23	12	
	Rates	$ 15	2.50	3.50	2	4.50	10	20	2	4	10	10	10	2	
	Values	$ 2,025	300	122	132	13	2,180	1,060	6,260	388	150	80	230	24	

* Cwt. = 100 pounds. † Quintal = 112 pounds.

Total Value ..... $ 12,964

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 2, Province of Nova Scotia, during the year 1915-16.

Kinds of Fish.	Caught and Landed in a Green State.		Marketed.		Total Marketed Value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Salmon....cwt.	4,608	49,471			
" used fresh.... "			4,528	67,920	
" canned.... cases			31	248	
" smoked....cwt.			49	980	
					69,148
Lobsters,.... "	81,737	392,996			
" canned....cases.			31,387	470,805	
" shipped in shell....cwt			18,962	189,620	
					660,425
Cod.... "	149,202	227,144			
" used fresh.... "			28,486	71,214	
" green, salted .... "			9,400	32,909	
" dried.... "			33,972	220,819	
					324,933
Haddock.... "	124,741	134,112			
" used fresh.... "			59,868	119,736	
" smoked (finnans).... "			6,692	40,152	
" dried.... "			17,163	77,234	
					237,122
Hake,.... "	28,456	27,453			
" dried.... "			9,485		
					37,940
Pollock .... "	26,205	24,347			
" used fresh .... "			384	576	
" dried.... "			8,607	34,428	
					35,004
Herring.... "	148,059	108,830			
" used fresh.... "			4,823	9,646	
" smoked.... "			6,374	19,122	
" pickled.... brl.			32,048	144,215	
" used as bait.... "			16,822	29,438	
" used as fertilizer.... "			350	175	
					202,596
Mackerel.... cwt.	37,596	212,496			
" used fresh .... "			25,757	180,299	
" salted.... brl.			3,945	55,230	
					235,529
Shad.... cwt.	1,208	7,592			
" used fresh.... "			1,049	10,490	
" salted.... "			53	1,060	
					11,550
Alewives .... cwt.	6,498	9,098			
" used fresh.... "			5,079	10,158	
" salted.... brl.			473	1,892	
					12,050
Halibut, used fresh.... cwt.	15,968	104,849	15,968		159,680
Flounders.... "	1,753	5,233	1,753		8,765
Smelts .... "	2,352	12,159	2,352		18,816
Trout.... "	426	2,968	426		4,260
Soles.... "	555	278	555		1,665
Albacore.... "	10,446	20,892	10,446		31,338
Skate.... "	1,113	557	1,113		1,113
Bass.... "	144	720	144		1,440
Eels.... "	1,151	3,774	1,151		5,755
Tom-cod .... "	20	60	20		100
Swordfish.... "	6,795	27,180	6,795		33,975
Mixed Fish.... "	2,025	2,025	2,025		3,037

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 2, Province of Nova Scotia, during the year 1915-16.

Kinds of Fish.	Caught and Landed in a Green State.		Marketed.		Total Marketed Value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Squid ..... brl.	2,791	10,105	2,791	.....	13,955
Oysters ..... "	1,230	5,601	1,230	.....	8,610
Clams ..... "	7,700	8,064	.....	.....	
" used fresh ..... "	.....	.....	7,579	15,158	
" canned ..... cases.	.....	.....	121	544	.....
					15,702
Tongues and Sounds ..... cwt.	.....	.....	217	.....	1,085
Seals ..... No.	18	18	.....	.....	
Hair Seal Skins ..... "	.....	.....	18	.....	22
Fish Oil ..... gal.	.....	.....	93,409	.....	37,362
Seal Oil ..... "	.....	.....	200	.....	80
				.....	
Totals	.....	1,398,022	.....	.....	2,173,057

RECAPITULATION.

Of the number of Fishermen, etc., and of the number and Value of all Fishing Vessels, Boats, Nets, etc., in District No. 2, Province of Nova Scotia, for the year 1915-16.

——	Number.	Value.
		$
Sailing and gasoline vessels	145	129,745
Boats (sail)	3,828	144,237
" (gasoline)	1,248	238,140
Carrying smacks	77	37,830
Gill nets, seines, trap and smelt nets, etc	35,725	361,853
Weirs	25	1,700
Trawls	4,363	56,264
Hand lines	9,713	6,792
Lobster traps	282,674	227,921
" canneries	92	125,065
Clam "	2	400
Freezers and ice-houses	122	201,990
Smoke and fish-houses	1,810	242,793
Fishing piers and wharves	830	224,146
Total value		1,998,876

Number of men employed on vessels	672
" " boats	4,664
" " carrying smacks	121
" persons employed in fish-houses, freezers, canneries, etc.	1,936
	7,393

DISTRICT No. 3.

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, &c., used in the Fishing Industry, in the County of Lunenburg, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.													Fishing Gear.		Number.
		Sailing and Gasoline Vessels.					Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, &c.		
		(40 tons and over). Number.	(20 to 40 tons). Number.	(10 to 20 tons). Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.	
	Lunenburg County.				$			$		$			$			$	
1	Fox Point						100	2200	6	1300	55				170	6000	1
2	Mill Cove			1	600	3	120	3000	4	800	55				200	5000	2
3	Lodge and N. W. Cove			1	600	3	60	1500	6	1200	34				140	4000	3
4	Aspotogan						30	1000	5	1500	14				100	3800	4
5	Bayswater, Blandford and Deep Cove		2	17	13500	54	165	4500	20	5000	70				400	8000	5
6	Chester			6	3000	16	75	2000	12	2800	35				200	5500	6
7	Mahone Bay and Martin's River	10		2	60000	186	122	3200	12	3400	35				200	3000	7
8	Tancook Island		1	16	10000	55	240	16800	60	16000	115				1000	16000	8
9	Lunenburg Harbour to Kingsbury	73	1	30	866040	1380			122	42700	189	1	230	2	1243	27967	9
10	La Have River	31	1	8	339600	674			143	50650	193	1	230	2	1440	14900	10
11	Petite Rivière to Vogler's Cove	2			21480	44			70	24500	101	1	230	1	700	7000	11
	Totals	116	5	81	1314820	2415	912	34200	460	149850	896	3	690	5	5793	101167	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, &c., used in the Fishing Industry, in the County of Lunenburg, Province of Nova Scotia, during the year 1915-16.—*Continued.*

Number.	Fishing Districts.	Fishing Gear.						Canneries.				Other Material.						Persons employed in Canneries, Freezers, and Fish-houses.	Number.
		Trawls.		Hand Lines		Lobster Traps.		Lobster Canneries.		Clam Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
		Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	Lunenburg County.		$		$		$		$		$		$		$		$		
1	Fox Point	50	750	100	50	1600	1000	....	....	....	....	1	200	15	1000	5	500	....	1
2	Mill Cove	60	1000	100	50	1000	1000	....	....	....	....	1	200	18	720	5	500	....	2
3	Lodge and N. W. Cove	35	500	75	35	1500	1500	....	....	....	....	....	....	20	800	15	600	....	3
4	Aspotogan	5	75	40	20	2000	2000	1	600	....	....	....	....	8	400	7	350	20	4
5	Bayswater, Blandford and Deep Cove	50	1200	300	150	3500	3500	....	....	....	....	2	200	68	2300	27	1500	....	5
6	Chester	7	210	60	30	1500	1500	1	600	1	600	1	200	10	400	8	800	25	6
7	Mahone Bay and Martin's River	70	2600	30	15	1000	1000	....	....	....	....	2	200	35	6500	25	6000	30	7
8	Tancook Island	185	3200	600	300	4000	4000	1	600	....	....	1	100	60	2500	40	1000	....	8
9	Lunenburg Harbour to Kingsbury	690	16560	415	207	18900	18900	1	600	....	....	1	2500	159	29850	12	175000	14	9
10	LaHave River	335	8040	506	253	19300	19300	1	600	....	....	....	....	190	28500	6	52000	10	10
11	Petite Rivière to Vogler's Cove	18	450	290	145	10100	10100	1	600	....	....	....	....	42	6300	....	....	10	11
	Totals	1505	34585	2516	1255	63800	63800	6	3600	1	600	9	3600	665	79270	150	238250	109	

RETURN showing the Number of Fishermen, etc., the Number and Value of the Fishing Industry in the County of Queens, Province

Number.	Fishing Districts	Vessels, Boats and Carrying Smacks.											
		Sailing and Gasoline Vessels.				Boats.					Carrying Smacks.		
		(20 to 40 tons.) Number.	(10 to 20 tons.) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.
	Queens County.			$			$		$			$	
1	Port Medway	..	8	3250	24	24	2000	21	3650	86	..	.....	.
2	Mill Village	....	....	.....	..	14	210	....	.....	28	..	.....	..
3	Greenfield	....	....	.....	..	13	200	....	.....	26	..	.....	..
4	Liverpool, Weston Head, Brooklyn	...	2	1500	5	5	250	65	9750	90	2	500	4
5	Gull Islands, White and Hunt's Point, Summerville	....	2	750	5	7	350	32	4800	50	1	200	2
6	Port Mouton, S. W. Port Mouton	....	3	1500	10	10	300	45	6750	90	6	15000	18
7	Port John, Port L'Hebert, Sandy Bay	....	...	....	..	2	100	32	4800	40	1	200	2
8	E. & W. Berlin, Beach Meadows, Eastern Head	1	2	2000	10	15	750	20	3000	60	1	200	2
	Totals	1	17	9000	54	90	4160	215	32750	470	11	16100	28

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Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in of Nova Scotia, during the year 1915-16.

Fishing Gear.								Canneries.				Other Material.							
Gill Nets, Seines, Trap & Smelt Nets, etc.		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Clam Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves		Persons employed in Canneries, Freezers and Fish-houses.	
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	
	$		$		$		$		$		$				$		$		
400	3200	90	450	300	225	4300	4300	1	1800	..	....	3	250	70	1800	20	750	12	1
41	280	..	....	...	....	.....	.....	....	.....	..	....	4	160	18	180	12	120	....	2
....	....	....	....	....	....	.....	.....	....	.....	..	....	5	250	14	200	....	....	..	3
630	19800	500	2000	300	225	8000	8000	1	2000	..	.. .	2	5000	60	3000	8	400	12	4
400	3200	150	600	300	225	7500	7500	..	.....	..	.....	....	....	50	2500	4	200	....	5
606	7800	300	1200	400	300	10000	10000	4	8000	..	...	2	1000	25	1250	10	500	60	6
401	3700	100	400	200	150	5000	5000	1	500	1	500	....	....	10	1000	4	200	....	7
402	4200	200	800	300	225	8500	8500	1	500	..	....	1	500	25	1250	8	500	....	8
2880	42180	1340	5450	1800	1350	43300	43300	8	12800	1	500	17	7160	272	11180	66	2670	84	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the County of Shelburne, Province of Nova Scotia, during the year 1015-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.																		Number.
		Steam Vessels.				Sailing and Gasoline Vessels.					Boats.					Carrying Smacks.				
		Number.	Tonnage.	Value.	Men.	(40 tons and over) number.	(20 to 40 tons) Number.	(10 to 20 tons) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value	Men.		
	Shelburne County.			$					$			$		$	$		$			
1	Woods Harbour							1	1000	7	10	350	102	23000	220	2	300			1
2	Shag Harbour and Bear Point							1	350	4	27	450	49	13180	130	1	900			2
3	Cape Island							17	3000	52	71	800	284	85400	555	1	2000	10		3
4	Barrington							5	1350	16	4	200	18	3750	35					4
5	Port La Tour and Baccaro							9	2300	36	32	1200	85	22950	140	1	250			5
6	Cape Negro and Blanche										4	90	40	9500	86					6
7	Port Saxon, Clyde Riv. N.E. and N.W. Harb.										40	580	15	2890	98					7
8	Red Head, Black Point, and Round Bay										67	790	20	2600	154					8
9	Roseway, Carleton Village and McNutt's. Hd.										83	1250	38	5700	192	1	200	2		9
10	Gunning Cove, Churchover and Birchtown										33	330	13	1850	92					10
11	Shelburne and Sandy Point						2	8	25000	102	92	4440	53	10500	240					11
12	Jordan East and West										50	630	29	5600	120					12
13	Lockeport					6	6	14	50000	180	200	3850	90	12560	496	3	11000	10		13
	Totals					9	8	55	83000	397	649	14960	836	199480	2558	15	14650	32		

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, used in the Fishing Industry in the County of Shelburne, Province of Nova Scotia, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Fishing Gear.								Lobster Canneries.		Other Material.						Persons Employed in Canneries, Freezers and Fish-houses.	Number.
		Gill Nets, Seines, Trap and Smelt Nets, etc.		Trawls.		Hand Lines.		Lobster Traps.				Freezers and Ice Houses.		Smoke and Fish Houses.		Fishing Piers and Wharves.			
		Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	Shelburne County.		$		$		$		$		$		$		$		$		
1	Woods Harbour	386	6378	20	140	50	50	13920	16450	6	3500	2	300	13	1800	12	7000	100	1
2	Shag Harbour and Bear Point	340	7840	14	98	70	70	11500	14000	2	500	2	250	56	2880	22	4500	25	2
3	Cape Island	1245	9340	550	3850	504	504	50175	61800	4	3500	5	1200	44	7550	51	25350	165	3
4	Barrington	37	259	10	70	50	50	1500	1750	.....	.....	4	400	11	1200	3	700	10	4
5	Port La Tour and Baccaro	565	4120	30	210	450	450	7020	8500	.....	.....	3	250	70	3500	6	1500	52	5
6	Cape Negro and Blanche	262	2000	100	700	82	82	5000	6200	1	150	1	200	6	2500	7	10700	18	6
7	Port Saxon, Clyde Riv. N.E. and W.E. Harb.	198	1782	54	270	72	72	730	730	.....	.....	.....	.....	24	220	13	310	.....	7
8	Black Point, Red Head, and Round Bay	289	3023	49	245	100	100	4320	4320	.....	.....	.....	.....	51	1370	11	560	.....	8
9	Roseway, Carleton Village and McNutt's Hd.	462	2772	100	500	227	227	4950	4950	1	200	.....	.....	88	1870	34	2400	25	9
10	Gunning Cove, Chrchover, Birchtown	296	1080	29	145	92	92	1480	1480	.....	.....	.....	.....	27	3100	15	1400	17	10
11	Shelburne and Sandy Point	686	4810	750	3750	340	340	4500	4500	.....	.....	.....	.....	90	8100	40	4600	26	11
12	Jordan, East and West	450	2763	60	300	150	150	3605	3605	2	200	.....	.....	65	2500	47	1500	.....	12
13	Lockeport	429	4810	818	4090	426	426	9690	9690	2	6500	5	146500	44	5670	70	65900	180	13
	Totals	5645	50977	2584	14368	2613	2613	118390	137975	18	14550	22	149100	589	42260	331	126420	618	

RETURN showing the Number and Value of Vessels and Boats and the Quantity of Yarmouth, Province of Nova Scotia,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks-																
		Steam Vessels.				Sailing and Gasoline Vessels.					Boats.						Carrying Smacks.	
		Number.	Tonnage.	Value.	Men.	(40 tons and over) No.	(20 to 40 tons) No.	(10 to 20 tons) No.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.
	Yarmouth County.			$					$			$		$			$	
1	Port Maitland	..	....	....	..	...	...	1	450	4	7	160	49	14700	100	..	....	..
2	Sandford	..	....	....	..	....	....	1	300	4	10	180	40	12000	96	..	....	..
3	Yarmouth	6	180	20950	26	5	3	5	29600	150	8	650	91	27300	190	1	350	3
4	Arcadia	..	...	....	..	...	..	....	..	....	4	200	25	8500	60	1	250	2
5	Pinkney's Point	..	....	....	..	....	....	....	....	....	5	250	35	10500	80	2	600	4
6	Comeau Hill	..	...	....	..	....	....	....	....	....	8	400	61	18300	139	2	590	5
7	Wedgeport	3	70	11000	18	1	...	2	5000	32	14	290	119	35700	265	..	....	..
8	Salmon River	..	....	....	..	...	....	...	....	....	18	90	....	.....	20	..	....	..
9	Tusket	..	....	....	..	....	....	1	300	3	75	460	....	.....	80	..	....	..
10	Eel Brook	..	....	....	..	....	...	2	900	15	9	100	3	900	12	..	....	..
11	Argyle	.	...	....	..	....	1	4	2350	30	8	130	38	11400	80	..	....	..
12	Pubnico	..	...	....	..	8	3	5	24300	214	16	230	68	20400	171	3	1000	6
	Totals	9	250	31950	44	14	7	21	63200	452	182	3140	529	159700	1293	9	2790	20

and Value of all Fishing Gear, etc., used in the Fishing Industry in the County during the year 1915-16.

Fishing Gear.										Canneries.		Other Material.						Persons employed in Canneries, Freezers and Fish-Houses.	
Gill Nets, Seines, Trap and Smelt Nets, etc.		Weirs		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice-Houses.		Smoke and Fish Houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	
	$		$		$		$		$		$		$		.		.		
192	3410	..	...	100	500	290	290	8500	8500	3	1500	3	200	16	1550	1	1200	70	1
190	7920	..	....	60	300	200	200	7160	7100	1	900	1	150	4	1000	1	100	50	2
440	4435	..	....	250	1250	920	920	14000	14000	3	3200	5	5600	22	20800	15	220500	405	3
125	620	..	...	15	75	70	70	5000	5000	2	1200	....	....	3	150	2	1200	30	4
160	810	1	200	15	75	80	80	5380	5380	...	....	...	....	3	150	2	400	3	5
270	1380	2	700	40	200	270	270	12650	12650	3	3000	...	....	5	3000	3	2400	78	6
441	4272	13	2600	60	300	560	560	20000	20000	3	3600	2	400	26	2000	7	7700	120	7
42	210	..	....	..	....	....	....	.....	.....	...	....	...	....	2	60	....	....	4	8
352	1630	5	1500	..	....	....	....	.....	.. ..	....	.....	....	....	23	1970	2	1000	35	9
94	460	..	....	...	....	..	.. .	210	210	....	... ..	....	....	....	.....	2	600	.....	10
200	1200	..	....	30	150	55	55	6060	6060	....	....	..	...	8	975	2	1200	18	11
420	4000	6	1800	20	100	418	418	12900	12900	4	4800	3	1400	33	4290	6	6200	136	12
2926	30347	27	6800	590	2950	2863	2863	91800	91800	19	18200	14	7750	145	35945	43	242500	949	

RETURN showing the Number of Fishermen, etc., the Number and Value of in the Fishing Industry in the County of Digby,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.																		Gill Nets Seines, Trap and Sinelt Nets, etc.	
		Steam Vessels.				Sailing and Gasoline Vessels.					Boats.					Carrying Smacks.					
		Number.	Tonnage.	Value.	Men.	40 tons & over	20 to 40 tons.	10 to 20 tons.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.
	Digby County.			$		No.	No.	No.	$			$		$			$			
1	Digby and Vicinity	..	..	....	..	5	..	2	37000	140	..	....	15	4500	30	3	2000	6	.....	.....
2	Bay View and Cullodden	..	..	....	..	..	..	..	....	...	12	600	17	3400	58	..	....	..	34	340
3	Gullivers Cove to Waterford	..	..	....	..	..	..	..	....	...	15	750	16	3200	38	..	.....	..	74	740
4	Centerville	1	32	6000	5	1	..	1	8200	27	10	200	28	11000	60	1	400	2	50	400
5	Sandy Cove and Mink Cove	..	..	....	..	..	1	..	1000	3	20	410	16	4000	50	1	200	2	55	1290
6	Little River and Whale Cove	..	..	....	..	..	1	2	4000	8	30	800	22	6600	50	3	2700	6	51	600
7	Tiddville and East Ferry	..	..	....	..	..	..	..	....	...	17	650	18	4500	53	..	.....	..	68	680
8	Tiverton and Central Grove	..	..	....	..	2	2	..	6000	30	20	600	80	30000	200	5	3500	14	202	2200
9	Freeport	..	..	....	..	3	..	1	7500	48	15	300	65	19500	170	4	5000	12	130	1300
10	Westport	..	..	....	..	1	..	1	3700	23	30	250	70	21000	180	3	3000	6	256	8900
11	Smith's Cove and Brighton	..	..	....	..	..	..	..	....	..	15	300	8	1500	37	..	.....	..	8	80
12	Plympton and Weymouth	..	..	....	..	..	..	..	....	...	16	320	25	6250	60	..	.....	..	104	1040
13	New Edinburgh	..	..	....	..	..	..	..	....	...	5	70	22	5500	54	..	.....	..	110	1100
14	White and Belliveau Cove	..	..	....	..	..	..	..	....	...	14	280	17	4250	62	..	.....	..	75	750
15	Grosses Coques	..	..	....	..	..	..	..	....	...	4	80	10	2500	28	..	.....	..	15	150
16	Church Point	..	..	....	..	..	..	..	....	...	10	200	5	1200	30	..	.....	..	20	200
17	Little Brook and Comeauville	..	..	....	..	1	..	..	1200	5	26	390	20	5000	92	..	....	..	4	40
18	Saulnierville	..	..	....	..	..	..	..	....	...	12	180	9	1850	42	..	.....	..	10	100
19	Meteghan River	..	..	....	..	..	..	..	....	...	9	320	7	1750	34	..	.....	..	20	200
20	Meteghan	..	..	....	..	..	..	..	....	..	20	400	14	3150	68	..	.....	..	40	400
21	Comeau's Cove	..	..	....	..	..	..	..	....	...	9	180	8	2000	28	..	.....	..	10	100
22	Bear Cove	..	..	....	..	..	..	..	....	...	20	300	14	3500	68	..	.....	..	20	200
23	Cape St. Mary's	..	..	....	..	..	1	11	4800	64	10	500	52	17500	135	1	400	2	100	1000
24	Salmon and Beaver Rivers	..	..	....	..	..	..	..	....	...	15	300	14	3250	58	..	.....	..	20	200
	Total	1	32	6000	5	13	5	18	73400	348	354	8380	572	166900	1685	21	17200	50	1476	22010

Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in Province of Nova Scotia, during the year 1915-16.

Fishing Gear.								Canneries.		Other Material.						Persons employed in Canneries, Freezers and Fish-houses.	
Weirs		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	$		$		$		$		$		$		$		$		
2	700	500	3500	25	25	1500	1500	..	.. .	9	11400	37	54600	12	36000	150	1
..	.....	78	546	20	20	2000	2000	..	. ...	..	.....	6	200	...	.....	.....	2
4	2000	96	672	50	50	2000	2000	..	.....	..	.....	9	800	1	2000	.....	3
..	.....	270	1890	25	25	1500	1500	1	30000	5	500	30	5700	1	500	75	4
2	1300	66	462	45	45	1600	1600	1	1500	8	1500	13	1800	....	.....	.....	5
2	1300	150	1050	25	25	2000	2000	4	12000	6	1000	25	3500	16	11000	50	6
1	1800	74	518	320	320	1600	1600	.	.....	1	25	16	1500	5	1500	.....	7
..	.....	750	5250	500	500	4500	4500	1	1500	2	900	49	8500	24	25000	100	8
..	.....	430	3110	250	250	3000	3000	.	....	4	750	75	10000	27	5000	15	9
..	.....	340	2380	300	300	3500	3500	2	2560	5	1500	24	3100	35	11000	55	10
9	2600	15	80	36	36	200	200	..	.....	3	75	7	300	....	.....	.....	11
2	600	80	560	106	106	1100	1100	.	. .	4	205	17	500	5	2000	.....	12
3	1600	175	1050	54	54	2000	2000	1	300	3	75	10	4300	....	.....	25	13
5	4000	150	900	50	50	400	400	..	....	6	150	19	4140	...	.....	40	14
5	1400	40	240	10	10	....	.....	..	.....	1	25	5	1200	....	.....	... .	15
..	.....	25	150	60	60	750	750	..	....	1	25	11	1350	....	.....	25	16
1	150	12	72	100	100	2400	2400	1	500	..	.....	22	850	...	.....	30	17
1	150	10	60	80	80	1800	1800	..	.....	..	.....	24	960	....	.....	18	18
2	300	20	120	40	40	1000	1000	..	.. .	..	.....	3	300	....	.....	5	19
..	.....	20	120	80	80	2100	2100	1	400	2	100	15	1250	....	.....	30	20
..	....	.. .	.....	65	65	1700	1700	..	...	..	.....	7	175	....	... .	5	21
..	.....	20	120	100	100	2000	2000	..	.....	..	.....	10	200	....	....	... .	22
..	.....	20	120	400	400	5000	5000	2	900	..	.....	41	1325	..	.....	100	23
..	.....	....	.....	76	76	400	400	..	.....	..	.. .	3	45	....	.....	6	24
39	17900	3341	22970	2817	2817	44050	44050	14	49600	60	18230	478	106595	126	94000	729	

RETURN showing the Number of Fishermen, etc., the Number and Value of Ves- Fishing Industry in the County of Annapolis,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.												
		Sailing and Gasoline Vessels.				Boats.					Carrying Smacks.			
		(40 tons and over) Number	(20 to 40 tons) Number	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	
	Annapolis County.			$			$		$			$		
1	Margaretville					6	120	9	2500	28				
2	Port George					37	740	9	2150	50				
3	Port Lorne					8	240	8	1800	30				
4	Hampton					10	500	4	900	20	1	300	3	
5	Phinney's Cove					30	600	11	2700	65	1	400	3	
6	Parker's Cove		1	500	10	35	700	26	5700	75	1	900	4	
7	Hilsburne	1	1	2500	24	18	360	18	4300	50				
8	Litchfield					10	200	17	4000	45				
9	Port Wade	2		4000	36	10	200	7	1400	24				
10	Victoria Beach					30	600	52	11000	120				
11	Deep Brook and Clementsport					10	200	5	1100	20				
12	Annapolis, Lequille and Nicteaux Rivers					50	750			60				
	Totals	3	2	7000	70	254	5210	166	37550	587	3	1600	10	

sels and Boats and the Quantity and Value of all Fishing Gear, etc., used in the Province of Nova Scotia, during the year 1915-16.

Fishing Gear.										Other Material.							
Gill Nets, Seines, Trap & Smelt Nets, &c.		Weirs.		Trawls.		Hand Lines.		Lobster Traps.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.		Persons Employed in Canneries, Freezers and Fish-houses.	
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	$		$		$		$		$		$		$		$		
35	350	2	400	6	180	125	125	125	125	3	300	10	1000	2	1000	....	1
50	500	2	300	25	375	175	175	500	500	9	450	15	750	....	.....	.....	2
50	500	2	300	20	300	150	150	350	350	2	150	10	500	....	.....	.....	3
30	300	2	300	20	300	50	50	300	300	3	300	4	400	....	.....	.. ...	4
70	700	..	....	50	1500	175	175	1600	1600	....	...	20	600	....	... ..	.....	5
60	600	..	....	150	2250	175	175	2000	2000	2	400	30	2500	1	1000	15	6
45	450	..	....	175	2625	100	100	500	500	3	2200	7	1500	2	800	40	7
20	200	..	....	150	2250	75	75	1000	1000	1	100	12	1200	....	.....	.....	8
.....	.....	3	600	125	3125	50	50	500	500	3	1500	11	3000	3	3000	5	9
.....	.....	..	....	250	7500	200	200	3000	3000	1	700	40	2000	10	2000	40	10
4	40	5	500	7	210	50	50	.....	.....	1	1500	10	1500	7	1500	.....	11
60	600	5	500	....	.....	.....	.....	.....	.....	....	....	.....	.....	10	1000	.....	12
424	4240	21	2900	978	20615	1325	1325	9875	9875	28	7600	169	14950	35	10300	100	

RETURN showing the Number of Fishermen, etc., the Number and Value of used in the Fishing Industry in the County of **Kings**,

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.							
		Sailing and Gasoline Vessels.			Boats.				
		(10 to 20 tons). Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.
	Kings County.		$			$		$	
1	Morden and vicinity	.....	.....	...	5	110	6	1,800	22
2	Victoria Harbour and Ogilvie's Wharf	.....	.....	....	3	60	2	500	12
3	Harbourville	1	300	4	2	30	4	1,200	12
4	Canada Creek	.....	.....	.....	7	140	1	250	15
5	Chipman's Brook and Huntingdon Point	1	400	4	4	70	2	500	10
6	Hall's Harbour	4	1,900	13	8	160	6	1,500	28
7	Race Point and Sheffield Vault	....	.....	.....	2	40	.....	.....	6
8	Baxter's Harbour	.....	.....	....	9	135	3	800	22
9	Whalen Beach and Wells Cove	.....	.....	....	2	40	....	.....	4
10	Scott's Bay	...	....	....	4	100	6	1,500	20
11	Blomidon and Kingsport	....	.....	...	2	40	3	900	15
	Totals	6	2,600	21	48	925	33	8,950	166

Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., Province of Nova Scotia, during the year 1915-16.

Fishing Gear.										Other Material.						
Gill Nets, Seines, Trap & Smelt Nets, etc.		Weirs.		Trawls.		Hand Lines.		Lobster Traps.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.		
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.
	$		$		$		$		$		$		$		$	
8	80	4	800	....	....	45	45	200	200	4	100	5	100	1	5,000	1
5	50	2	400	....	....	20	20	100	100	1	15	2	40	1	7,000	2
5	50	3	600	....	....	25	25	....	....	2	40	4	100	1	15,000	3
10	100	3	800	....	....	30	30	345	345	3	50	6	120	1	8,000	4
10	100	3	700	4	20	20	20	60	60	1	20	3	45	1	5,000	5
15	150	2	500	10	50	35	35	100	100	4	80	5	100	1	10,000	6
....	....	2	400	....	....	6	6	....	....	2	30	2	40	....	....	7
18	180	1	200	6	30	45	45	50	50	2	30	5	100	1	4,000	8
2	20	1	250	10	50	....	....	....	....	1	15	1	15	....	....	9
12	120	4	1,200	7	35	40	40	100	100	5	100	7	200	1	5,000	10
12	120	4	1,000	...	....	30	30	...	....	1	15	2	40	1	10,000	11
97	970	29	6,850	37	185	296	296	955	955	26	495	42	900	9	69,000	

THE

RETURN showing the Quantities and Values of all Fish caught and landed the year

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.
	Lunenburg County.		$		$		$		$		$		$
1	Fox Point	....	....	196	1960	3786	7572	1305	1957	939	939	132	198
2	Mill Cove	....	....	138	1380	546	1092	24	36	18	18	234	270
3	Lodge and N. W. Cove	....	....	277	2720	495	990	6	9	....	....	....	....
4	Aspotogan	....	....	181	1810	126	252	....	....	....	....	....	....
5	Bayswater, Blandford and Deep Cove	....	....	589	5890	3720	7440	69	86	18	18	117	125
6	Chester	42	675	487	4900	816	1632	144	210	....	....	24	24
7	Mahone Bay and Martins River	8	145	157	1570	41751	83502	2904	4356	672	672	1968	1968
8	Tancook Island	....	....	446	4460	5493	10986	2403	3605	....	....	2199	2199
9	Lunenburg and Kingsburg	3	90	3754	37540	302097	679717	48469	72703	....	....	3900	3900
10	La Have River	44	1320	3160	31600	201222	452749	32881	49321	....	....	222	222
11	Petite Rivière to Vogler's Cove	12	360	1728	17280	2871	6459	903	1354	....	....	48	48
	Totals	109	2590	11113	111110	562923	1252391	89108	133637	1647	1647	8844	8954

Cwt. = 100 lb.

CATCH.

in a green state in the County of Lunenburg, Province of Nova Scotia, during 1915-16.

Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Albacore, cwt.	Albacore, value.	Sword-fish, cwt.	Sword-fish, value.	Clams, brl.	Clams, value.	Scallops, brl.	Scallops, value.	Number.
	$		$		$		$		$		$		$		$		$	
2090	1045	2064	6276	....	....	....	.. ..	....	....	65	65	30	150	..	....	.....	.....	1
275	175	3378	10212	...	....	....	.....	....	....	105	105	50	256	....	....	.....	.....	2
150	80	1846	5658	....	....	....	...	....	....	5	5	11	55	....	....	.....	....	3
111	111	798	2460	....	....	...	.....	....	....	3	3	90	450	....	....	....	.....	4
6445	6245	1640	5510	....	....	26	130	....	....	....	....	70	350	...	....	85	170	5
1130	930	465	1395	27	27	....	.....	38	530	....	....	..	.....	430	430	207	414	6
420	320	120	360	3	3	29	145	29	400	....	...	....	.....	....	....	115	230	7
12000	12000	1800	6390	...	....	32	160	....	....	60	60	95	475	...	....	4678	9356	8
8358	12537	2913	11650	. .	..	1681	8405	241	2410	....	....	4180	26900	....	..	.....	.....	9
3183	4774	1071	4284	...	....	1047	5235	418	4180	...	.....	1200	6000	....	....	....	.....	10
597	597	150	600	...	...	405	2025	36	360	...	....	....	.....	....	....	.....	.....	11
34759	38814	16245	54795	30	30	3220	16100	762	7880	238	238	5726	28630	430	430	5085	10170	

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Lunenburg**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, cwts*	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, dried, †quintals.	Haddock, fresh, cwts.	Haddock, dried, quintals.	Hake and Cusk, dried, quintals.	Pollock, dried, quintals.	Herring, used fresh cwt.	Herring, pickled, brls.	Herring, used as bait, brls.	Number.
	Lunenburg County.													
1	Fox Point	..	33	130	.....	1262	30	425	313	44	.....	.....	1045	1
2	Mill Cove	...	29	80	210	112	24	.....	6	78	15	20	100	2
3	Lodge and N.W. Cove	...	41	200	.....	165	6	.....	....	.....	30	.....	60	3
4	Aspotogan	....	48	85	....	42	....	.....	...	.....	.....	37	...	4
5	Bayswater, Blandford and Deep Cove	...	134	321	.....	1240	3	21	6	39	15	2010	200	5
6	Chester	42	82	323	...	272	138	2	.....	8	.....	243	200	6
7	Mahone Bay and Martin's River	8	26	105	..	13917	75	943	224	656	.....	73	100	7
8	Tancook Island	...	75	296	...	1831	120	761	.....	733	....	4000	..	8
9	Lunenburg Harbour to Kingsburg	3	269	3216	.....	100699	169	16100	.	1300	.....	2786	...	9
10	La Have River	44	248	2660	....	67074	85	10932	..	74	.....	1061	..	10
11	Petite-Rivière to Vogler's Cove	12	131	1466	... ..	954	.. ..	301	....	16	...	199	....	11
	Totals	109	1116	8882	219	187568	650	29485	549	2948	60	10429	1705	
	Rates $	25	20	14	2.50	7	4	5	4	5	1.50	4	2	
	Values $	2725	22320	124348	525	1312976	2600	147425	2196	14740	90	41716	3410	

*Cwt. = 100 lbs. †Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Lunenburg**, Province of **Nova Scotia**, during the year 1915-16.—*Concluded.*

Number.	Fishing Districts.	Mackerel, fresh, cwts.	Mackerel, salted, brls.	Alewives, fresh, cwts.	Alewives, salted, brls.	Halibut, fresh, cwts.	Smelts, fresh, cwts.	Albacore, fresh, cwts.	Swordfish, fresh, cwts.	Clams and Quahaugs, canned, cases.	Scallops, shelled, gals.	Fish Oil, gallons.	Number.
	Lunenburg County.												
1	Fox Point	1914	50					65	30			640	1
2	Mill Cove	3318	20					105	50			80	2
3	Lodge and N.W. Cove	1221	208					5	11			65	3
4	Aspotogan	12	262					3	90			10	4
5	Bayswater, Blandford and Deep Cove	180	486			26			70		170	500	5
6	Chester	60	135	9	6		38			430	414	100	6
7	Mahone Bay and Martin's River	15	35	3		29	29				230	7000	7
8	Tancook Island	66	478			32		60	95		9356	1000	8
9	Lunenburg Harbour to Kingsburg		971			1681	211		4180			34400	9
10	La Have River		357			1047	418					18000	10
11	Petite-Rivière to Vogler's Cove		50			405	36		1200				11
	Totals	6786	3052	12	6	3220	762	238	5726	430	10170	61795	
	Rates $	5	11	1.50	4	5	12	2	6	4	1.25	36c.	
	Values $	33930	33572	18	24	16100	9144	476	34356	1720	12712	22246	

Total Value ..... $ 1,839,369

THE

RETURN showing the Quantities and Values of all Fish caught and landed in a year

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.
	Queens County.		$		$		$		$		$		$		$
1	Port Medway	62	1030	1306	13285	1806	2709	400	800	192	288	264	396	245	245
2	Mill Village	43	790	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	...	....
3	Greenfield	25	390	.....	.. .	.....	.....	. ...	.....	.....	.....	..	..	....	....
4	Liverpool, Brooklyn, and Western Head.	10	200	2000	19000	1200	1800	500	850	200	200	750	837	1500	1500
5	Gull Islands, White and Hunts Point, and Summerville.....	..	....	2500	23750	905	1357	500	850	300	300	1250	1562	1000	1000
6	Port Mouton and S.W. Port Mouton.	....	....	2720	25840	2000	3000	750	1075	300	300	1250	1562	2500	2500
7	Port Joli, Port L'Hebert, and Sandy Cove.	...	....	1900	18050	800	1200	900	1530	250	250	250	312	700	700
8	East and West Berlin, Beach Meadows, and Eastern Head.....	...	....	1920	18240	2324	3486	1130	1901	350	350	500	625	1000	1000
	Totals.....	140	2410	12346	118165	9035	13552	4180	7009	1592	1688	4264	5294	6945	6945

* Cwt. = 100 lbs.

SESSIONAL PAPER No. 39

CATCH.

green state in the County of Queens, Province of Nova Scotia, during the 1915-16.

Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Albacore, cwt.	Albacore, value.	Eels, cwt.	Eels, value.	Sword-fish, cwt.	Sword-fish, value.	Clams, brls.	Clams, value.	Hair Seals, No.	Hair Seals, value.	Number.
	$		$		$		$		$		$		$		$		$		$		$	
52	390	....	....	75	75	27	162	39	390	....	....	....	....	90	450	235	1410	19	57	60	60	1
....	....	5	50	350	350	....	....	....	....	18	180	....	....	....	....	....	....	....	....	....	....	2
....	....	....	....	900	900	....	....	....	....	40	400	....	....	....	....	....	....	....	....	....	....	3
4375	21875	....	....	110	110	40	280	50	250	....	....	200	1000	....	....	100	750	..	....	....	....	4
500	2500	....	....	....	....	100	700	....	....	....	....	25	125	....	....	50	325	....	....	....	....	5
1000	5000	....	....	....	....	100	700	....	....	....	....	50	250	....	....	100	750	....	....	....	....	6
1000	5000	....	....	....	....	75	525	....	....	....	....	50	250	....	....	25	187	....	....	....	....	7
1500	7500	....	....	....	....	20	140	....	....	....	....	25	125	....	....	35	257	....	....	....	....	8
8427	42265	5	50	1435	1435	362	2507	89	640	58	580	350	1750	90	450	545	3679	19	57	60	60	

THE CATCH

RETURN showing the Quantities and Values of all Fish and Fish Products of Queens, Province of Nova

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintal.	Haddock, used fresh, cwt.	Haddock, smoked, cwt.	Haddock, dried, quintal.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, dried, quintal.	Pollock, dried, quintal.	Herring, used fresh, cwt.
	Queens County.													
1	Port Medway	62	.....	1306	186	.....	540	136	....	88	156	11	88	....
2	Mill Village	43	.....	.....	.....	.....	.....	.. ..	....	.....	.....	.....	.....	..
3	Greenfield	25	.. ..	....	.....	.....	.....	.....	....	.....	.....	.....	.....	....
4	Liverpool, Western Head, Brooklyn	10	.....	1000	250	400	50	300	100	...	....	67	250	150
5	Gull Islands, White and Hunt's Point, Summerville	.	.....	1250	....	400	35	....	....	167	....	100	417	50
6	Port Mouton and S. W. Port Mouton	.	1955	1500	100	....	634	300	....	150	...	100	416	50
7	Port Joli, Port L'Hebert, Sandy Bay	.....	.....	2000	75	200	108	200	....	234	....	83	83	50
8	East and West Berlin, Beach Meadows, and Eastern Head	....	.....	1380	90	250	578	220	. ..	304	....	117	166	50
	Totals	140	1955	8436	701	1250	1945	1156	100	943	156	478	1420	350
	Rates.....$	25	14	14	2	3	6	2	5	5	1.50	4	4	1
	Values.....$	3500	27370	118104	1402	3750	11670	2312	500	4715	234	1912	5680	350
	Total value.....$	.....	.....	.....	....	.....	....	...	....	.

*Cwt. = 100 lb. †Quintal = 112 lb.

MARKETED.

Marketed in a fresh, dried, pickled, canned, etc., state in the County Scotia, during the year 1915-16.

Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Halibut, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt	Albacore, used fresh, cwt.	Eels, used fresh, cwt.	Swordfish, used fresh, cwt.	Clams and Quahaugs, used fresh, brl.	Hair seal skins, No.	Fish oil, gal.	Number.
15	100	52	.....	.....	25	27	39	.....	....	90	235	19	60	80	1
.....	.....	.....	5	350	.....	.....	....	18	.....	.....	.....	.....	.....	.....	2
.....	....	.....	.....	900	.....	.....	.....	40	.....	.....	....	.....	.....	.....	3
100	525	4375	.....	110	.....	40	50	.....	200	.....	100	.....	.....	.....	4
200	175	500	.....	.....	.....	100	...	.....	25	.....	50	.....	.....	.....	5
400	625	1000	....	.....	...	100	.....	.....	50	.....	100	.....	.....	.....	6
.....	325	1000	.....	.....	.....	75	....	.....	50	....	25	.....	.....	.....	7
100	325	1500	.....	.....	.....	20	.....	.....	25	....	35	.....	.....	.....	8
815	2075	8427	5	1360	25	362	89	58	350	90	545	19	60	80	
4	2	6	.10	2	4	7	10	10	5	5	7	3	1	40c.	
3260	4150	50562	50	2720	100	2534	890	580	1750	450	3815	57	60	32	

.....$252,509

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a green state, in the County of Shelburne, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing District.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Number.
	Shelburne County.		$		$		$		$		$		$		$		$	
1	Woods Harbour	.....	.. ..	6901	79170	79	118	20	20	.....	.....	.....	.....	5145	5145	1250	6875	1
2	Shag Harbour and Bear Point	....	.. ...	2232	25628	820	1230	50	50	.....	.....	.....	.....	2192	2192	165	907	2
3	Cape Island	....	....	13706	157278	16234	24351	2811	2811	....	.	4553	4553	9985	9985	3905	21477	3
4	Barrington	34	272	217	2495	3418	5127	572	572	....	. ..	264	264	721	721	55	302	4
5	Port-La-Tour and Baccaro	.....	.....	525	6023	6589	9884	1442	1442	...	.....	477	477	1687	1687	66	363	5
6	Cape Negro and Blanche	.....	.....	456	5242	2386	3579	988	988	.. .	....	.....	.....	6400	6400	195	1072	6
7	Port Saxon, Clyde River, N.E and N.W. Harbour.	10	156	308	2680	490	735	40	60	.....	.....	10	10	309	326	6	42	7
8	Black Point, Red Head and Round Bay	1	15	680	6074	615	922	420	630	....	...	125	75	5036	4257	60	393	8
9	Roseway, Carleton Village and McNutt's Island	.....	.....	911	8608	3380	5070	2210	3315	.....	...	245	147	11800	9925	147	1053	9
10	Cunning Cove, Churchover and Birchtown	3	51	744	7195	1386	2079	950	1425	.....	.....	170	102	6648	5635	25	165	10
11	Shelburne and Sandy Point	11	174	726	6903	3160	5190	2275	3412	.....	.....	106	66	56772	53829	502	3350	11
12	Jordan East and West	28	435	2071	18652	865	1297	1555	1944	.....	....	36	29	1908	1546	105	785	12
13	Lockeport	...	...	9845	89110	53012	79518	21270	31905	11842	10065	6000	5400	26397	19742	2116	14390	13
	Totals	87	1103	39322	415058	92731	139100	34603	48574	11842	10065	11986	11123	135390	121690	8597	51174	

*Cwt. = 100 lb.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a green state, in the County of Shelburne, Province of Nova Scotia, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Albacore, cwt.	Albacore, value.	Eels, cwt.	Eels, value.	Swordfish, cwt.	Swordfish, value.	Squid, brl.	Squid, value.	Clams, brl.	Clams, value.	Number.
	Shelburne County.		$		$		$		$		$		$		$		$	
1	Wood's Harbour							64	288									1
2	Shag Harbour and Bear Point			5	37			90	405			5	40					2
3	Cape Island			1727	12952			440	1980			75	600					3
4	Barrington	420	420	38	285			2	9							30	60	4
5	Port-La-Tour and Baccaro			53	398													5
6	Cape Negro and Blanche			30	225							35	280					6
7	Port Saxon, Clyde River, N.E. and N.W. Harbour	435	435									3	21					7
8	Black Point, Red Head and Round Bay	80	80	30	180							2	10					8
9	Roseway, Carleton Village and McNutt's Island	65	65			14	204									25	31	9
10	Gunning Cove, Churchover and Birchtown	25	25			33	482									310	387	10
11	Shelburne and Sandy Point	60	60	211	1246	6	92					1	5			225	281	11
12	Jordan East and West	130	130	17	99	95	1366											12
13	Lockeport	198	198	747	5075			1205	4985	15	45	863	5089	36	80	493	613	13
	Totals	1413	1413	2858	20497	148	2144	1801	7667	15	45	984	6045	36	80	1083	1372	

'Cwt. = 100 lb.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned etc., state in the County of **Shelburne**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, * cwt.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, † quintals.	Haddock, used fresh, cwt.	Haddock, smoked, cwt.	Haddock, dried, quintals.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, dried, quintals.	Pollock, used fresh, cwt.	Pollock, dried, quintals.	Herring, used fresh, cwt.	Number.
	Shelburne County.															
1	Wood's Harbour		2401	2099	20	13	5		3						685	1
2	Shag Harbour and Bear Point		471	1290	182	152									1429	2
3	Cape Island		3170	7366	3776	2894	9		934					1518	1525	3
4	Barrington	34		217	776	622	4		189					88	96	4
5	Port La Tour and Baccaro			525	1515	1186	6		497					159	256	5
6	Cape Negro and Blanche			456	607	391			329						53	6
7	Port Saxon, Clyde River, N.E. and N.W. Harbour	10		308	237	50	50		12				10		284	7
8	Black Point, Red Head and Round Bay	1		680	149		155	110	103					41	2726	8
9	Roseway, Carleton Village and McNutt's Island	182		517	1644	32	365	1250	320				50	65	6285	9
10	Gunning Cove, Churchover and Birchtown	3		744	901	25	145	250	233					59	4438	10
11	Shelburne and Sandy Point	11		726	2110		450	1500	258				106		44972	11
12	Jordan, East and West	28		2071	546		105	1000	185				36		1358	12
13	Lockeport		2764	4316	4774	13055	7376	5418	3327	3066	994	3616	225	1922	5783	13
	Totals	87	8988	21345	10361	20326	13904	9552	3327	6129	994	3616	427	3852	69890	
	Rates $	20	18	16	2.50	3	6	2	8	5	1.50	4.50	1.50	5	1	
	Values $	1740	161784	341520	25902	60978	83424	19104	26616	30645	1491	16272	640	19260	69890	

* Cwt. = 100 lbs. † Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state in the County of **Shelburne**, Province of **Nova Scotia**, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Herring, smoked, cwt.	Herring, pickled, brls.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Halibut, used fresh, cwt.	Smelts, used fresh, cwt.	Albacore, used fresh, cwt.	Eels, used fresh, cwt.	Swordfish, used fresh, cwt.	Squid, used as bait, brl.	Clams and Quahaugs, used fresh, brls.	Fish Oil, gals.	Number.
	Shelburne County.																
1	Wood's Harbour		510	1615	1220	10					64						1
2	Shag Harbour and Bear Point		15	354	165				5		90		5				2
3	Cape Island		1600	1830	3905				1727		410		75			2140	3
4	Barrington		125	125	55		150	90	38		2				30		4
5	Port La Tour and Baccaro		445	48	66				53								5
6	Cape Negro and Blanche		1941	762	195				30				35				6
7	Port Saxon, Clyde River, N. E. and N.W. Harbour		25	20	6		435										7
8	Black Point, Red Head and Round Bay		460	460	30	10	80		30				3				8
9	Roseway, Carleton Village and McNutt's Island		925	1370	42	35	65			14			2				9
10	Gunning Cove, Churchover and Birchtown		330	610	10	5	25			33					25		10
11	Shelburne and Sandy Point		2000	2900	352	50	60		211	6					310		11
12	Jordan, East and West		50	200	105		130		17	95			1		225		12
13	Lockeport	2800	1142	5291	1849	89	198		747		1205	15	863	36	493	2813	13
	Totals	2800	9568	15588	8000	199	1143	90	2858	148	1801	15	984	36	1083	4953	
	Rates $	7	8	2	7	14	1.50	4	9	15	5	7	8	3	2	30c.	
	Values $	19600	76534	31176	56000	2786	1714	360	25722	2220	9005	105	7872	108	2166	1486	

Total value $1,096,120

RETURN showing the Quantities and Values of all Fish caught and landed in a green state in the County of Yarmouth, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Number.
	Yarmouth County.		$		$		$		$		$		$		$		$		$	
1	Port Maitland	16	320	4816	44122	1228	1750	468	738	.....	.....	2820	2692	850	674	287	861	3	18	1
2	Sandford	18	360	4592	42935	1072	1525	39	61	....	.....	1105	1079	1030	820	616	2148	2	12	2
3	Yarmouth	1	20	9798	91638	26019	36657	10467	16538	12444	11300	12502	11709	3089	2447	1114	3342	1	6	3
4	Arcadia	...	....	2550	23825	300	435	21	32	.....	....	39	35	1300	1047	200	600	....	...	4
5	Pinkney's Point	...	.. .	2958	27637	150	210	9	14	.....	.....	15	13	1000	799	100	300	...	....	5
6	Comeau Hill	....	.....	10128	94777	2260	3239	201	317	... ..	.....	300	270	3308	2622	1200	3600	....	...	6
7	Wedgeport	....	...	10216	95540	2000	2850	99	156	.....	.....	102	93	7000	5500	7000	20990	....	.	7
8	Salmon River	7	140	.....	.....	.....	.....	.....	.....	....	.....	.....	....	....	.... ..	....	.....	.....	...	8
9	Tusket	21	420	.. ..	.....	.....	.....	.....	.....	.....	. ...	.....	.....	.....	.....	....	.....	20	118	9
10	Eel Brook	..	. .	60	558	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
11	Argyle	...	.... .	2958	27637	86	120	.....	.....	.....	.....	...	.....	320	254	43	129	....	....	11
12	Pubnico	....	.....	10200	95300	20400	28580	3214	5072	1492	1350	5646	5244	3054	2422	3500	10197	....	...	12
	Totals	63	1260	58276	543969	53515	75366	14518	22928	13936	12650	22529	21135	20951	16575	14060	42767	26	154	

*Cwt =100 pounds.

RETURN showing the Quantities and Values of all Fish caught and landed in a green state in the County of Yarmouth, Province of Nova Scotia, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Alewives, cwt.*	Alewives, value.	Halibut, cwt.	Halibut, value.	Smelts, cwt.	Smelts, value.	Albacore, cwt.	Albacore, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Swordfish, cwt.	Swordfish, value.	Mixed Fish, cwt.	Mixed Fish, value.	Squid, brl.	Squid, value.	Clams, brl.	Clams, value.	Dulse, Crabs, Cockles and other Shell Fish, cwt.	Dulse, Crabs, Cockles and other Shell Fish, value.	Number.
	Yarmouth County.		$		$		$		$		$		$		$		$		$		$		$	
1	Port Maitland	14	14	5	36	...	....	...	..	....	....	....	....	....	....	350	175	...	...	....	....	.....	.....	1
2	Sandford	60	60	...	.....	....	....	...	....	....	....	....	...	193	571	410	20	...	....	....	....	.....	.....	2
3	Yarmouth	20	20	3452	26317	...	....	...	....	..	....	....	...	193	571	830	415	.	....	300	600	30	54	3
4	Arcadia	10	10	..	.....	....	....	...	....	....	....	....	....	....	....	..	....	..	.	50	80	15	27	4
5	Pinkney's Point	.....	.....	....	.....	....	....	...	....	....	....	....	....	....	....	..	....	..	.	25	48	...	.....	5
6	Comeau Hill	.....	.....	4	30	....	....	18	67	..	..	..	..	....	....	50	25	...	....	10	23	.....	.....	6
7	Wedgeport	40	40	1	8	...	...	3.6	124	....	....	....	....	..	....	60	30	....	..	20	40	28	51	7
8	Salmon River	170	170	....	..	8	97	....	...	30	180	....	....	....	....	....	..	....	....	....	....	.....	.....	8
9	Tusket	4717	4717	.. ..	.	123	1699	....	....	80	480	..	....	....	....	....	....	....	....	....	....	.....	.....	9
10	Eel Brook	100	100	.....	....	30	362	....	...	50	300	..	....	..	....	....	....	....	....	....	....	.....	.....	10
11	Argyle	10	10	...	.....	....	....	....	....	45	270	...	....	....	....	....	....	....	....	100	200	15	27	11
12	Pubnico	40	40	100	755	112	1436	40	149	25	150	12	60	...	....	130	65	40	24	150	300	50	92	12
	Totals	5181	5181	3562	27146	273	3594	394	1458	230	1380	12	60	193	571	1830	915	40	24	655	1291	138	251	

* Cwt=100 pounds.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of Yarmouth, Province of Nova Scotia, during the year 1915--16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintal.	Haddock, used fresh, cwt.	Haddock, smoked, cwt.	Haddock, dried, qtl.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, smoked fillets, cwt.	Hake and Cusk, dried, quintals.	Pollock, used fresh, cwt.	Pollock, dried, qtl.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Number.
	Yarmouth County.																			
1	Port Maitland	16	1218	2380	10	.....	406	.....	.....	156	.....	.....	.....	.....	940	2	.....	133	224	1
2	Sandford	18	1241	2060	10	.....	354	.....	.....	13	.....	.....	.....	.....	368	.....	.....	133	315	2
3	Yarmouth	1	1948	6152	2307	4859	4664	4091	1030	1438	2335	343	3027	308	4064	1	210	577	468	3
4	Arcadia	.....	708	1134	8	146	.....	.....	.....	7	.....	.....	.....	.....	13	2	.....	233	299	4
5	Pinkney's Point	.....	810	1338	6	72	.....	.....	.....	3	.....	.....	.....	.....	5	.....	.....	200	200	5
6	Comeau Hill	.....	2482	5084	8	676	300	.....	.....	67	.....	.....	.....	.....	100	4	.....	765	504	6
7	Wedgeport	.....	3005	4146	18	691	200	.....	.....	33	.....	.....	.....	.....	34	2	.....	2000	500	7
8	Salmon River	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
9	Tusket	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
10	Eel Brook	.....	20	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
11	Argyle	.....	908	1142	.....	43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	160	11
12	Pubnico	.....	3000	4140	16	5692	3000	2	.....	1070	.....	.....	497	.....	1882	2	.....	634	576	12
	Totals	63	15310	27596	2383	12179	8924	4093	1030	2787	2335	343	3524	308	7406	13	210	4675	3246	
	Rates	20	17	16.50	2.10	3.10	6.10	2	8	4	1	8	4	1	4	1.70	4	4	2	
	Values	1260	260780	455334	5004	37754	54436	8186	8240	11148	2335	2744	14096	308	29624	22	840	18700	6492	

* Cwt. = 100 lbs. † Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Yarmouth**, Province of **Nova Scotia**, during the year 1915--16.

Number.	Fishing Districts.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Alewives, salted, brl.	Halibut, used fresh, cwt.	Smelts, used fresh, cwt.	Albacore, used fresh, cwt.	Eels, used fresh, cwt.	Tom-cod, used fresh, cwt.	Sword-fish, used fresh, cwt.	Mixed fish, used fresh, cwt.	Squid, used as bait, brls.	Clams and Quahaugs, used fresh, brl.	Dulse, Crabs, Cockles and other Shell Fish, used fresh, cwt.	Fish Oil.	Number.
	Yarmouth County.																	
1	Port Maitland	287	.....	12	14	...	5	.....	.....	.....	.....	.....	250	.....	.....	.....	80	1
2	Sandford	616	.....	8	60	.....	.....	.....	.....	.....	.....	.....	410	.....	.....	.....	40	2
3	Yarmouth	1000	38	.....	20	.....	3432	.....	.....	.....	.....	193	830	.....	300	30	845	3
4	Arcadia	110	30	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	50	15	.....	4
5	Pinkey's Point	55	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	.....	.....	5
6	Comeau Hill	600	200	.....	.....	.....	4	.....	18	.....	.....	.....	50	.....	10	.....	42	6
7	Wedgeport	1000	2000	...	10	10	1	...	336	.....	.....	.....	60	.....	20	28	40	7
8	Salmon River	...	.....	.....	20	50	.....	8	.....	30	.....	.....	.....	.....	.....	.....	.....	8
9	Tusket	.....	.....	6	2029	896	.....	123	.....	80	.....	.....	.....	.....	.....	.....	.....	9
10	Eel Brook	.....	.....	.....	100	.....	.....	30	.....	50	.....	.....	.....	.....	.....	.....	.....	10
11	Argyle	43	.....	.....	10	..	.....	.....	.....	45	.....	.....	.....	.....	100	15	.....	11
12	Pubnico	2018	494	.....	40	...	100	112	40	25	12	..	130	40	150	50	1200	12
	Totals	5729	2777	26	2303	959	3562	273	394	230	12	193	1830	40	655	138	2247	
	Rates $	8.10	12.50	9	1.50	3.50	10	17	5	7	6	8	1	2	2	4	40c.	
	Values $	46404	34712	234	3454	3356	35620	4641	1970	1610	72	1544	1830	80	1310	552	898	

Total value $1,055,590

* Cwt. = 100 lbs. † Quintal = 112 lbs.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a green state in the County of Digby, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Husk, cwt.	Hake and Husk value.	Pollock, cwt.	Pollock, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Number.
	Digby County.		$		$		$		$		$		$		$		$	
1	Digby and vicinity	5	100	300	5400	10402	18203	38527	77054	25050	22545	800	800	2075	1556	15	67	1
2	Bay View and Culloden	....	...	450	8100	180	315	500	1000	1500	1350	75	75	25	19	..	...	2
3	Gulliver's Cove to Waterford	35	700	500	9000	700	1225	660	1200	4500	4050	185	185	8000	6006	800	3600	3
4	Jentreville	...	..	800	14000	4000	7000	13408	26816	8400	7560	120	120	9000	6750	135	608	4
5	Sandy Cove and Mink Cove	..	....	650	11700	500	875	600	1200	1600	1440	124	124	7500	5625	200	900	5
6	Little River and Whale Cove	....	...	1500	27000	950	1663	3200	6400	8906	8015	150	150	5400	4050	100	450	6
7	Tiddville and East Ferry	....	..	500	9000	700	1225	250	500	8400	7560	1200	1200	1600	1200	50	225	7
8	Tiverton and Central Grove	...	....	2300	41000	12500	21875	1700	3400	40000	36000	3000	3000	2500	1875	...	....	8
9	Freeport	...	....	2000	36000	7500	13125	904	1808	21000	18900	3400	3400	1000	750	....	.....	9
10	Westport	...	....	2300	41400	9700	16975	2900	5800	12050	10845	5000	5000	1500	1125	.....	....	10
11	Smith's Cove and Brighton	2	40	10	180	5	9	5	10	10	9	.....	.....	6000	4500	....	...	11
12	Plymnton to Weymouth	....	....	150	2700	534	934	100	200	100	90	50	50	600	450	....	...	12
13	New Edinburgh	....	....	299	5382	273	546	5458	5458	.....	....	.. ..	.	2115	2115	82	492	13
14	Belliveau and White Cove	....	....	18	324	22	44	20268	20268	...	....	.....	....	6408	6408	178	1068	14
15	Grosses Coques	....	...	10	180	...	.....	10	10	.....	....	.....	...	1585	1585	6	36	15
16	Church Point	...	....	82	1476	390	780	20	20	.....	....	123	123	185	185	. ..	...	16
17	Little Brook and Comeauville	....	...	1497	21946	2204	4408	120	120	.....	....	. .	.....	455	455	...	....	17
18	Saulnierville	...	...	267	4806	1652	3304	135	135	....	.....	60	60	385	385	.....	....	18
19	Meteghan River	..	....	185	3330	2212	4424	301	301	...	....	.....	.	337	337	.....	.	19
20	Meteghan	....	..	903	16254	6193	12386	1395	1395	.....	..	405	405	395	395	.....	...	20
21	Comeau's Cove	....	....	211	3798	932	1864	206	206	.. ..	....	36	36	90	90	.....	.....	21
22	Bear Cove	....	...	330	5940	30	60	5	5	...	.....	....	.....	160	160	...	.....	22
23	Cape St. Mary's	...	...	4991	89838	4840	9680	573	573	.....	.. ..	642	642	2425	2425	....	....	23
24	Salmon and Beaver River	1	20	.....	...	1371	2742	130	130	.....	.. ..	.. ..	....	375	375	.....	.. ..	24
	Totals	43	860	20253	352754	67790	123662	91315	154009	131516	118364	15370	15370	60115	48815	1566	7446	

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a green state in the County of Digby, Province of Nova Scotia, during the year 1915-16—*Concluded.*

Number.	Fishing Districts.	Alewives, cwt.	Alewives, value.	Sardines, brls.	Sardines, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Skate, cwts.	Skate, value.	Albacore, cwt	Albacore, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Mixed fish, cwt.	Mixed fish, value.	Squid, brl.	Squid, value.	Winkles, cwt.	Winkles, value.	Clams, brl.	Clams, value.	Mussels, cwt.	Mussels, value.	Dulse, cwt.	Dulse, value.	Number.
	Digby County.		$		$		$		$		$		$		$		$		$		$		$		$		$		$		$		$	
1	Digby and vicinity	15	15	..	....	280	1960	82	82	10	50	10	100	96	144	10	40	2	24	3	1	50	12	3	12	380	380	1760	2728	480	240	2156	2156	1
2	Bay View and Culloden	..	..	..	..	5	35	..	..	..	..	2	20	..	..	..	..	..	..	..	..	25	6	4	16	..	..	..	..	..	..	30	30	2
3	Gulliver's Cove and Waterford	12	12	..	..	4	28	25	25	2	10	..	..	..	..	15	60	3	36	8	4	80	20	1	4	..	..	50	77	..	..	90	90	3
4	Centreville	..	..	436	2180	60	420	5	5	..	..	..	..	..	..	..	..	..	..	..	..	100	25	2	8	..	..	..	..	..	..	..	..	4
5	Sandy Cove and Mink Cove	10	10	..	..	3	21	15	15	4	20	1	10	..	..	120	180	..	..	3	2	75	19	1	4	..	..	75	116	..	..	..	..	5
6	Little River and Whale Cove	8	8	..	..	3	21	20	20	4	20	1	10	..	..	8	32	4	48	3	1	80	20	1	4	..	..	..	..	..	..	..	..	6
7	Tiddville and East Ferry	..	..	..	..	5	35	20	20	3	15	3	30	..	..	105	420	..	..	2	1	25	6	5	20	..	..	..	..	..	..	..	..	7
8	Tiverton and Central Grove	..	..	..	..	150	1050	..	..	..	..	2	20	..	..	1	..	..	..	..	..	85	22	10	40	..	..	50	77	..	..	..	..	8
9	Freeport	..	..	..	..	176	1232	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	12	25	100	..	..	300	465	..	..	..	..	9
10	Westport	..	..	..	..	180	1260	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40	10	30	120	..	..	75	117	..	..	..	..	10
11	Smith's Cove to Brighton	2163	2163	..	..	..	..	30	30	3	15	10	100	..	..	..	..	..	..	3	2	100	25	..	..	..	..	..	..	..	..	..	..	11
12	Plympton to Weymouth	..	..	..	..	..	..	12	12	54	540	15	150	..	..	..	..	35	420	150	75	15	4	..	..	..	..	350	543	..	..	..	..	12
13	New Edinburgh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	36	..	..	..	..	..	..	..	..	..	..	80	120	..	..	..	..	13
14	Belliveau and White Cove	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	24	..	..	2	4	..	..	..	..	..	..	120	180	..	..	..	..	14
15	Grosses Coques	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	6	..	..	..	..	..	..	125	187	..	..	..	..	15
16	Church Point	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	7	..	..	..	..	16
17	Little Brook and Comeaville	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	6	..	..	..	..	..	..	..	..	..	..	..	..	17
18	Saulnierville	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
19	Meteghan River	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	10	..	..	..	..	..	..	8	12	..	..	..	..	19
20	Meteghan	..	..	..	..	16	112	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	30	..	..	..	..	20
21	Comeau's Cove	..	..	..	..	7	49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
22	Bear Cove	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
23	Cape St. Mary's	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
24	Salmon and Beaver Rivers	..	..	..	..	2	14	..	..	..	..	50	500	..	..	..	..	80	400	..	..	..	..	..	..	..	..	20	30	..	..	..	..	24
	Totals	2208	2208	436	2180	891	6237	209	209	80	670	94	940	96	144	268	792	124	928	185	112	725	181	82	328	380	380	3538	5464	480	240	2276	2276	

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products, Marketed in a fresh, dried, pickled, canned, etc., state, for the County of Digby, Province of Nova Scotia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, cwt.	Lobsters, canned cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, qtl	Haddock, used fresh, cwt.	Haddock, canned, cases.	Haddock, smoked, cwt.	Haddock, smoked fillets, cwt.	Haddock, dried, qtls.	Hake and Cusk, used fresh, cwt.	Hake and Cusk, dried, qtl.	Pollock, used fresh, cwt.	Pollock, dried, qtl.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, canned, cases.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Number.
	Digby County.																						
1	Digby and vicinity	5	.....	300	500	2500	1634	3100	.....	11598	3866	111	....	8350	....	267	....	....	.....	....	1035	15	1
2	Bay View and Culloden	.....	.....	450	....	15	50	500	. .	.....	.....	..	....	500	...	25	..	....	.....	....	12	...	2
3	Gulliver's Cove to Waterford	35	.....	500	....	350	...	600	.....	.....	.....	....	..	1500	...	61	..	..	.....	...	4000	575	3
4	Centreville	.....	166	468	...	.....	1334	...	5220	2278	.....	.....	....	2800	...	40	...	860	5733	...	1633	9	4
5	Sandy Cove and Mink Cove	.....	. .	650	....	....	166	600	.....	.....	.....	.....	....	533	....	42	....	....	.....	....	3750	200	5
6	Little River and Whale Cove	.....	626	244	...	.....	317	.....	1550	360	....	...	...	2969	..	50	....	....	.....	...	2700	100	6
7	Tiddville and East Ferry	.....	...	500	....	...	233	250	.....	.....	.....	.....	....	2800	...	400	..	....	.....	...	800	50	7
8	Tiverton and Central Grove	....	17	2266	....	3000	2167	850	.....	425	...	.....	....	13334	...	1000	.....	....	.....	...	1250	...	8
9	Freeport	.. ..	.....	2000	....	...	2509	901	...	.....	.....	.....	....	7000	...	1133	.....	....	.....	..	500	....	9
10	Wesport	.....	463	1374	....	....	3234	2900	.....	..	....	....	....	4017	..	1667	.....	....	.....	...	750	...	10
11	Smith's Cove and Brighton	2	....	10	5	.....	...	5	...	.....	....	....	10	.	...	.....	..	..	..	....	3000	...	11
12	Plympton to Weymouth	.....	.....	150	....	.....	178	100	....	..	....	....	....	33	50	.....	..	....	...	....	300	....	12
13	New Edinburgh	.....	55	189	....	.....	91	70	.....	2694	.....	..	..	...	..	....	50	..	....	25	995	82	13
14	Belliveau and White Cove	.. ..	....	18	22	...	.....	90	.....	10089	.....	.....	....	.....	..	.....	150	350	.....	50	2704	178	14
15	Grosses Coques	.....	.....	10	..	.....	....	10	.....	..	...	....	....	.....	....	..	50	....	..	65	670	6	15
16	Church Point	.....	.....	82	....	.....	130	20	....	.....	.....	....	....	...	...	41	25	....	.	...	80	..	16
17	Little Brook and Comeanville	.....	422	65	14	..	730	60	. .	.....	...	20	....	.....	....	...	25	...	....	10	200	...	17
18	Saulnierville	....	.....	267	2	....	550	135	....	.....	...	.....	....	.....	....	20	25	...	.....	20	150	...	18
19	Meteghan River	...	.....	185	7	.....	735	94	.....	.....	....	69	...	.....	....	...	25	...	....	21	120	...	19
20	Meteghan	....	293	316	43	.....	2050	495	. .	.....	.....	300	...	.....	....	135	25	...	..	30	140	....	20
21	Comeau's Cove	....	.....	211	8	....	308	266	...	.....	.....	.....	..	.....	....	12	...	...	.....	10	30	....	21
22	Bear Cove	.....	...	330	....	...	10	5	.....	.....	....	.....	..	.....	....	.....	...	...	.....	10	65	...	22
23	Cape St. Mary's	.. .	868	3254	79	.....	1587	300	....	.....	.....	91	...	.....	....	214	50	..	.....	125	1000	...	23
24	Salmon and Beaver Rivers	1	.....	...	....	....	457	130	.....	..	.....	.....	...	.....	....	.....	...	..	....	25	150	..	24
	Totals	43	2910	14427	680	5865	18161	11724	6770	27441	3866	591	16	43836	50	5167	845	1210	5733	394	26034	12.5	
	Rates $	20	18	30	3	4	6	3	4	7	8	6	1	4.50	1	5	1	4	4	5	2	7	
	Values $	860	52380	432810	2040	23460	104766	35172	27080	192108	30928	3546	10	197262	50	25535	845	1840	22932	1970	52068	50	

*Cwt. = 100 lbs. †Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Digby**, Province of **Nova Scotia**, during the year 1915-16---*Concluded.*

Number.	Fishing Districts.	Mackerel, canned, cases.	Mackerel, salted, brl.	Alewives, used fresh, cwt.	Sardines, canned, cases.	Halibut, used fresh, cwt.	Flounders used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Skate, used fresh, cwt.	Albacore, used fresh, cwt.	Eels, used fresh, cwt.	Tom Cod, used fresh, cwt.	Mussels, used fresh, cwt.	Mixed fish, used fresh, cwt.	Squid, used as bait, brl.	Winkles, used fresh, cwt.	Clams, used fresh, brl.	Dulse, dried, cwt.	Hake sounds, pickled or dried, cwt.	Fish Skins, cwt.	Fish Offal, tons.	Fish Oil, gal.	Number.
	Digby County.																							
1	Digby and vicinity			15		280	82	10	10	96	10	2	3	480	50	3	380	1760	432	91	1000		2100	1
2	Bay View and Culloden					5			2						25	4			6	8				2
3	Gulliver's Cove to Waterford		75	12		4	25	2			15	3	8		80	1		50	18	20				3
4	Centreville	131			436	60	5								100	2				8	43	2000	5500	4
5	Sandy Cove and Mink Cove			10		3	15	4	1		120		3		75	1		75		33			500	5
6	Little River and Whale Cove			8		3	20	4	1		8	4	3		80	1				40			3100	6
7	Tiddville and East Ferry					5	20	3	3		105		2		25	5				150				7
8	Tiverton and Central Grove					150			2						85	10		50		75			10500	8
9	Freeport					176									50	25		300		45			2600	9
10	Westport					180									40	30		75					2700	10
11	Smith's Cove and Brighton			2163			30	3	10				3		100			500						11
12	Plympton and Weymouth						12	54	15			35	159		15			350						12
13	New Edinburgh										6							80						13
14	Belliveau and White Cove										4		2					120						14
15	Grosses Coques												3					125						15
16	Church Point																	5						16
17	Little Brook and Comeauville												3											17
18	Saulnierville																							18
19	Meteghan River												5					8						19
20	Meteghan					16												20						20
21	Comeau's Cove					7																		21
22	Bear Cove																							22
23	Cape St. Mary's																						150	23
24	Salmon and Beaver Rivers					2			50			80						20						24
	Totals	231	75	2208	436	891	209	80	94	96	268	124	185	480	725	82	380	3538	456	470	1043	2000	27150	
	Rates $	8	10	1	5	10	2	10	10	2	5	10	1	1	50c.	4	2	1.75	5	30c.	1.35	2	60c.	
	Values $	1048	750	2208	2180	8910	418	800	940	191	1340	1240	185	480	363	328	760	6191	2286	141	1408	4000	16290	

Total value $1,271,619

RETURN showing the Quantities and Values of all Fish caught and
Scotia, during the

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwts.	Pollock, value.	Herring, cwts.	Herring, value.	Mackerel, cwt.	Mackerel, value.
	Annapolis County.		$		$		$		$		$		$		$		$
1	Margaretsville	52	1040	19	380	310	620	152	304	70	70	84	84	230	230	..	....
2	Port George ..	63	1260	71	1420	210	420	120	240	83	83	80	80	280	280	.	....
3	Port Lorne	35	700	46	920	330	660	102	204	94	94	354	354	205	205	..	..
4	Hampton.....	41	820	151	3020	200	400	321	642	400	400	205	205	360	360	..	.....
5	Phinney's Cove	....	....	212	4240	340	680	550	1100	1300	1300	310	310	229	229	..	....
6	Parker's Cove..	....	....	221	4420	830	1660	525	1050	3321	3321	420	420	250	250	.	....
7	Hillsburn ..	....	..	197	3940	3020	6040	3000	6000	5020	5020	110	110	360	360	..	.....
8	Litchfield	....	....	135	2700	810	1620	850	1700	3485	3485	90	90	280	280	..	....
9	Port Wade. ...	...	....	52	1040	700	1400	2040	4080	3000	3000	....	....	750	750	..	....
10	Victoria Beach.	...	....	282	5640	1050	2100	3700	7400	5010	5010	320	320	...	....	..	....
11	Deep Brook and Clementsport	....	....	....	.....	81	162	200	400	40	40	....	....	250	250	69	345
12	Annapolis, Lequille and Nicteaux Riv.	62	1240	....	.. .	...	.....	.....	.....	....	.. .	....	...	....	..	..	....
	Totals.....	253	5060	1386	27720	7881	15762	11560	23120	21823	21823	1973	1973	3194	3194	69	345

landed in a green state in the County of Annapolis, Province of Nova year 1915-16.

Shad, cwt.	Shad, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Trout, cwt.	Trout, value.	Sturgeon, cwt.	Sturgeon, value.	Bass, cwt.	Bass, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Mixed Fish, cwt.	Mixed Fish, value.	Clams, brls.	Clams, value.	Dulse, Crabs, etc., cwt.	Dulse, Crabs, etc., value.	Number.
	$		$		$		$		$		$		$		$		$		$		$	
....	..	....	....	..	....	..	....	....	....	....	....	..	....	..	....	....	....	....	....	....	....	1
....	..	....	....	..	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	2
....	..	....	....	..	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	3
....	....	....	....	..	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	4
....	....	....	....	..	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	5
....	....	....	....	..	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	6
....	....	....	....	..	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	7
....	....	....	....	..	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	8
....	....	420	3360	20	40	....	....	....	....	....	....	..	....	....	....	....	....	300	450	....	....	9
....	....	310	2480	..	.	....	....	....	....	....	....	..	....	30	60	....	....	....	....	150	750	10
....	....	....	....	30	60	200	3000	....	.	....	....	30	150	....	..	125	250	103	154	56	280	11
300	1500	..	....	..	....	200	3000	11	220	75	375	..	....	....	....	....	..	....	....	....	....	12
300	1500	730	5840	50	100	400	6000	11	220	75	375	30	150	30	60	125	250	403	604	206	1030	

THE CATCH

RETURN showing the Quantities and Values of all Fish and Fish Products
Annapolis, Province of Nova

Number.	Fishing Districts.	Salmon, used fresh and frozen, cwt.*	Lobsters, canned, cases.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, smoked fillets, cwt.	Cod, dried, quintals.†	Haddock, used fresh, cwt.	Haddock, smoked, cwt.	Haddock, dried, quintals.	Hake and Cusk, smoked fillets, cwts.	Hake and Cusk, dried, quintals.
	Annapolis County.											
1	Margaretville	52	1	17	10	.....	100	20	.....	44	.....	23
2	Port George	63	1	69	8	.....	67	30	.....	30	.....	24
3	Port Lorne	35	1	44	9	.....	107	30	.....	24	.....	32
4	Hampton	41	1	149	8	....	64	20	.....	100	.....	133
5	Phinney Cove	....	1	210	.....	.....	113	10	.....	180	.....	433
6	Parkers Cove	....	1	219	5	.....	275	15	.....	170	.....	1107
7	Hillsburn	.....	1	195	.....	.....	1006	15	500	662	.....	1677
8	Litchfield	.....	.....	135	.....	.....	270	480	....	123	.....	1162
9	Port Wade	....	1	50	145	99	86	1245	230	112	.....	1000
10	Victoria Beach	.....	2	278	210	115	165	1925	408	323	100	1570
11	Deep Brook and Clementsport	.....	....	.....	36	.....	15	100	.....	33	.....	13
12	Annapolis, Lequelle and Nicteaux Rivers	62	.....	.....	.....	.....	....	.....	....	.....	.....	.....
	Totals	253	10	1366	432	214	2268	3890	1138	1801	100	7174
	Rates ..... $	20	20	21	2	10	7	2.50	8	6	5	5
	Values ..... $	5060	200	28686	864	2140	15876	9725	9104	10806	500	35870

Total value .....

* Cwt. = 100 lbs. † Quintal = 112 lbs.

MARKETED.

Marketed in a fresh, dried, pickled, canned, etc., state, for the County of Scotia, during the year 1915-16.

Pollock, dried, quintals.	Herring, smoked, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Shad, used fresh, cwt.	Halibut, used fresh, cwt.	Flounders, used fresh, cwt.	Trout, used fresh, cwt.	Sturgeon, used fresh, cwt.	Bass, used fresh, cwt.	Eels, used fresh, cwts.	Tom Cod, used fresh, cwt.	Mixed Fish, used fresh, cwt.	Clams and Quahaugs, used fresh, brl.	Dulse, Crabs, Cockles, and other Shell Fish, used fresh, cwt.	Caviare or Sturgeon Roe, cwt.	Fish Oil, gal.	Number.
28	....	40	55	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	300	1
27	....	43	75	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200	2
118	....	53	23	..	.....	.....	.. ..	.....	.....	.....	.. .	...	.....	.....	.....	.....	200	3
68	....	73	74	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	200	4
103	.. .	63	20	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	... .	.....	450	5
140	...	44	59	....	.....	.....	.....	.....	.....	.....	.....	...	....	.....	.....	.....	400	6
37	....	60	90	....	.....	.....	.....	. ..	.....	.....	.....	.....	.....	.....	.....	.....	1000	7
30	...	47	68	....	.....	.....	.....	... .	.....	.....	.....	.. .	.....	...	.....	.....	300	8
....	9	118	184	....	.....	420	20	....	.....	.....	.....	..	.....	300	.....	.....	400	9
107	....	...	.. .	....	.....	310	...	.....	.....	.. .	....	30	.....	.....	150	.....	1200	10
.....	....	42	61	69	.....	.....	30	200	.. ..	.....	30	....	125	103	56	.. ..	.....	11
.....	....	.....	.....	....	300	....	... .	200	11	75	.....	...	....	.....	.....	1	....	12
658	9	583	709	69	300	730	50	400	11	75	30	30	125	403	206	1	4650	
4	3	5	2	5	5	8	2	15	20	10	6	2	2	1.50	5	200	60c.	
2632	27	2915	1418	345	1500	5840	100	6000	220	750	180	60	250	604	1030	200	2790	

.... $145,692

THE

RETURN showing the Quantities and Values of all Fish caught and during the

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Pollock, cwt.	Pollock, value.
	Kings County.		$		$		$		$		$		$
1	Morden	174	3132	45	675	346	692	25	50	39	78	336	504
2	Victoria and Ogilvie	50	900	18	270	110	220	12	24	21	42	89	133
3	Harbourville	130	2340	14	210	205	410	13	26	15	30	152	228
4	Canada Creek	160	2880	92	1380	226	452	26	52	45	90	156	234
5	Chipman's Brook and Huntingdon Point	75	1350	20	300	109	218	13	26	21	42	85	127
6	Hall's Harbour	240	4320	36	540	814	1628	31	62	60	120	310	465
7	Race Point and Sheffield Vault	105	1890	...	...	...	...	...	...	...	...	95	143
8	Baxter's Harbour	32	576	15	225	485	970	81	162	36	72	330	495
9	Whalen Beach and Well's Cove	22	396	...	...	15	30	...	...	...	...	32	48
10	Scott's Bay	52	936	22	330	225	450	57	114	30	60	88	132
11	Blomidon and Kingsport	54	972	...	...	96	192	11	22	...	...	35	52
12	Avonport and inland waters	1	15	...	...	68	136	..	...	...	...	...	...
	Totals	1095	19707	262	3930	2699	5398	269	538	267	534	1708	2561

CATCH.

landed in green state in the County of Kings, Province of Nova Scotia, year 1915-16.

Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Shad, cwt.	Shad, value.	Alewives, cwt.	Alewives, value.	Halibut, cwt.	Halibut, value.	Trout, cwt.	Trout, value.	Squid, brl.	Squid, value.	Clams, brl.	Clams, value.	Number.
	$		$		$		$		$		$		$		$	
237	237	20	200	3	30	....	.....	10	100	.....	.....	20	20	.....	.....	1
125	125	21	210	1	10	....	..	3	30	. ..	.....	10	10	.....	.....	2
318	318	27	270	3	30	....	.....	2	20	....	.. .	15	15	.. .	.....	3
224	224	16	160	7	70	....	.....	3	30	.....	.....	40	40	.....	.....	4
120	120	12	120	1	10	....	.....	4	40	....	.....	15	15	.....	.....	5
417	417	25	250	4	40	....	...	4	40	.. ...	.....	45	45	.....	.. ...	6
15	15	7	70	3	30	....	.....	....	.....	.....	.....	. ..	....	.....	.....	7
477	477	.....	....	.....	... ..	....	.....	4	40	.....	.....	35	35	.....	.....	8
30	30	20	200	3	30	....	.....	...	.. ..	.....	.....	5	5	....	.....	9
949	949	16	160	51	510	....	.. ...	6	60	.....	.....	10	10	.....	.....	10
107	107	.....	.. ...	8	80	....	.....	25	250	.....	.....	15	15	50	150	11
36	36	.....	....	51	510	30	45	...	....	14	140	.....	.....	.....	...	12
3055	3055	164	1640	135	1350	30	45	61	610	14	140	210	210	50	150	

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the County of **Kings**, Province of **Nova Scotia**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, dried, †quintals.	Haddock, used fresh, cwt.	Hake and Cusk, dried, quintals.	Pollock, used fresh, cwt.	Pollock, dried, quintals.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Mackerel, used fresh, cwt.	Shad, used fresh, cwt.	Alewives, used fresh, cwt.	Halibut, used fresh, cwt.	Trout, used fresh, cwt.	Squid, used as bait, brls.	Clam- and Quahaugs, used fresh, brl.	Fish Oil, gal.	Number.
	Kings County.																					
1	Morden	174	45	1	115	25	13	30	102	11	.....	30	68	20	3	..	10	...	20	....	40	1
2	Victoria and Ogilvies	50	18	5	35	12	7	5	28	.	....	15	40	21	1	...	3	...	10	..	....	2
3	Harbourville	130	14	31	58	13	5	2	50	21	50	27	58	27	3	....	3	..	15	....	....	3
4	Canada Creek	160	92	31	65	26	13	6	50	....	20	20	62	16	7	...	3	....	40	..	30	4
5	Chipman's Brook & Huntingdon Point	75	20	4	35	13	7	4	27	....	.	20	33	12	1	....	4	...	15	....	.	5
6	Hall's Harbour	210	36	25	263	31	20	40	96	6	.....	81	84	25	4	...	4	...	45	...	50	6
7	Race Point & Sheffield Vault	105	..	.	...	...	...	5	30	..	....	5	.....	7	3	....	.....	.....	.....	....	....	7
8	Baxter's Harbour	32	15	230	85	81	12	165	55	..	.....	87	108	..	...	....	4	....	35	...	25	8
9	Whalen Beach and Wells Cove	22	....	.	5	...	..	17	5	.....	.....	10	... ..	20	3	..	.. ..	....	5	....	.....	9
10	Scotts Bay	52	22	60	55	57	10	22	22	.	312	53	83	16	51	....	6	...	10	.	50	10
11	Blomidon and Kingsport	54	....	66	10	11	....	20	5	6	...	3	46	..	8	....	25	...	15	50	....	11
12	Avonport and Inland Waters	1	.....	68	.....	....	....	...	.....	....	18	....	...	.....	51	30	... .	14	..	. .	....	12
	Totals	1095	262	521	726	269	89	316	464	41	400	351	579	164	135	30	61	14	210	50	195	
	Rates....$	18	15	3	7	2	6	2	5	1	4	5	2	10	10	1 50	10	10	1	3	30c	
	Values....$	19710	3930	1563	5082	538	531	632	2326	44	1600	1755	1158	1640	1350	45	610	140	210	150	58	

Total Value.....$ 43,069

*Cwt. = 100 lbs. † Quintal = 112 lbs.

RECAPITULATION

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for District No. 3, Province of Nova Scotia, during the year 1915-16.

Kinds of Fish.		Caught and landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	$
Salmon	cwt.	1,790	32,990			
" used fresh	"			1,790		34,855
Lobsters	"	142,958	1,578,716			
" canned	cases.			30,319	524,834	
" shipped in shell	cwt.			82,314	1,504,732	2,029,566
Cod	"	796,577	1,625,231			
" used fresh	"			15,288	37,300	
" green—salted	"			39,620	125,942	
" smoked fillets	"			214	2,140	
" dried	"			233,796	1,588,230	1,753,612
Haddock	"	245,553	389,815			
" used fresh	"			31,334	77,637	
" canned	cases.			6,770	27,080	
" smoked (finnans)	cwt.			33,039	236,568	
" smoked fillets	"			3,866	30,928	
" dried	"			41,736	208,285	580,498
Hake and Cusk	"	182,623	166,771			
" used fresh	"			3,495	4,070	
" smoked fillets	"			443	3,244	
" dried	"			59,266	268,142	275,456
Pollock	"	66,674	66,410			
" used fresh	"			1,101	1,630	
" dried	"			21,855	99,791	101,421
Herring	"	264,409	239,088			
" used fresh	"			71,202	71,241	
" canned	cases.			5,733	22,932	
" smoked	cwt.			4,629	26,907	
" pickled	brl.			26,815	146,850	
" used as bait	"			49,936	99,872	367,802
Mackerel	cwt.	49,128	200,432			
" used fresh	"			30,390	197,386	
" canned	cases.			131	1,048	
" salted	brl.			6,103	71,820	269,254
Shad	cwt.	466	3,054			
" used fresh	"			466		3,134
Alewives	"	10,297	10,312			
" used fresh	"			7,056	10,159	
" salted	brl.			1,080	3,840	13,999
Sardines	brl.	436	2,180			
" sold fresh or salted	"			436		2,180
Halibut, used fresh	cwt.	11,684	78,937	11,684		95,336
Flounders	"	259	309	259		518
Smelts	"	1,352	14,928	1,352		17,695
Trout	"	566	7,660	566		7,660
Skate	"	96	144	96		192
Albacore	"	3,051	11,905	3,051		14,541

RECAPITULATION

Of the Quantities and Values of all Fish caught and landed in a Green State, and, of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for District No. 3, Province of Nova Scotia, during the year 1915-16—*Concluded.*

Kind of Fish.		Caught and landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	$
Sturgeon	cwt.	11	220	11		220
Bass	"	75	375	75		750
Eels	"	489	2,953	489		3,585
Tom-cod	"	227	232	227		317
Swordfish	"	7,448	38,925	7,448		47,587
Mixed Fish	"	2,680	1,345	2,680		2,443
Squid	brl.	368	642	368		726
Clams	"	6,178	9,368			
" used fresh	"			5,748	10,478	
" canned	cases.			430	1,720	
						12,198
Dulse, Cockles and other shell fish	cwt.	3,480	4,177	1,660		5,102
Tongues and Sounds	"			470		141
Caviare (Sturgeon roe)	"			1		200
Scallops	brl.	5,085	10,170			
" shelled	gal.			10,170		12,712
Fish Skins	cwt.			1,043		1,408
" Offal	ton.			2,000		4,000
" Oil	gal.			101,070		43,800
Hair Seals	No.	60	60			
" Skins	"			60		60
Totals			4,497,349			5,703,968

RECAPITULATION

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in District No. 3, Province of Nova Scotia, for the year 1915-16.

	Number.	Value.
		$
Steam fishing vessels (tonnage 282)	10	37,950
Sailing and gasoline vessels	381	1,553,020
Boats (sail)	2,489	70,975
" (gasoline)	2,811	755,180
Carrying smacks	62	53,030
Gill nets, seines, trap and smelt nets, etc	19,241	251,891
Weirs	116	34,450
Trawls	10,375	101,123
Hand lines	14,230	12,519
Lobster traps	372,170	391,755
" canneries	65	98,750
Clam "	2	1,100
Freezers and ice-houses	176	193,935
Smoke and fish-houses	2,350	291,100
Fishing piers and wharves	760	783,140
Total		4,629,918

Number of men employed on vessels	3,866
" " boats	7,655
" " carrying smacks	145
" persons employed in fish-houses, freezers, canneries, etc	2,589
Total	14,195

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the whole Province of Nova Scotia, during the year 1915-16.

Kinds of Fish.		Caught and landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
Salmon	cwt.	10,043	113,759			
" used fresh	"			9,868	156,025	
" canned	cases.			44	352	
" salted (dry)	cwt.			56	1,048	
" smoked	"			49	980	
						158,405
Lobsters	"	264,644	2,098,531			
" canned	cases.			78,632	1,232,603	
" shipped in shell	cwt.			107,366	1,743,072	
						2,975,675
Cod	"	1,076,284	2,044,054			
" used fresh	"			68,563	158,092	
" green—salted	"			73,184	255,498	
" smoked fillets	"			214	2,140	
" dried	"			286,895	1,923,811	
						2,339,541
Haddock	"	554,046	721,219			
" used fresh	"			145,039	305,047	
" canned	cases.			6,770	27,080	
" smoked (finnans)	cwt.			44,768	317,016	
" green-salted	"			20,285	60,855	
" smoked fillets	"			3,895	31,160	
" dried	"			85,292	417,484	
						1,158,642
Hake	"	218,840	199,550			
" used fresh	"			3,857	4,432	
" smoked	"			666	3,330	
" smoked fillets	"			443	3,244	
" green-salted	"			156	468	
" dried	"			70,669	312,927	
						324,401
Pollock	"	100,636	96,621			
" used fresh	"			2,781	3,652	
" green-salted	"			265	795	
" dried	"			32,435	142,170	
						146,617
Herring	"	467,699	406,102			
" used fresh	"			80,113	89,063	
" canned	cases.			5,733	22,932	
" smoked	cwt.			11,468	47,424	
" pickled	brl.			69,059	342,045	
" used as bait	"			76,559	148,912	
" used as fertilizer	"			350	175	
						650,551
Mackerel	cwt.	113,516	513,356			
" used fresh	"			60,218	399,115	
" canned	cases.			131	1,048	
" salted	brl.			17,620	232,168	
						632,331
Shad	cwt.	1,746	10,772			
" used fresh	"			1,545	13,774	
" salted	brl.			63	1,200	
						14,974

RECAPITULATION

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the whole Province of Nova Scotia, during the year 1915-16—*Concluded.*

Kinds of Fish.		Caught and landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	$
Alewives	cwt.	21,955	22,468			
" used fresh	"			12,253	20,494	
" salted	brl.			3,233	14,132	
						34,626
Sardines	brl.	436	2,180			
" sold fresh or salted	"			436		
						2,180
Halibut, used fresh	cwt.	30,518	199,250	30,518		283,676
Flounders	"	2,110	5,598	2,110		9,833
Smelts	"	4,770	33,644	4,770		47,987
Trout	"	1,007	10,698	1,007		12,070
Soles	"	595	358	595		1,865
Albacore	"	13,497	32,797	13,497		45,879
Sturgeon	"	11	220	11		220
Skate	"	1,209	701	1,209		1,305
Bass	"	219	1,095	219		2,190
Eels	"	2,182	8,599	2,182		12,050
Tom-cod	"	247	292	247		417
Swordfish	"	18,527	81,550	18,527		106,090
Mixed fish	"	4,825	4,440	4,725		5,520
Squid	brl.	4,032	14,227	4,032		20,314
Oysters	"	1,592	6,687	1,592		10,420
Clams	"	13,926	17,558			
" used fresh	"			13,375	25,762	
" canned	cases.			551	2,264	
						28,026
Dulse, cockles and other shell fish	cwt.	3,480	4,177	1,660		5,102
Tongues and sounds	"			731		1,666
Caviare (sturgeon roe)	"			1		200
Hair seals	No.	2,857	2,857			
Hair seal skins	"			2,857		2,861
Scallops	brl.	5,085	10,170			
" shelled	gallons.			10,170		12,712
Fish oil	"			254,312		101,893
Seal oil	"			22,448		11,204
Fish skins	cwt.			1,043		1,408
Fish offal	tons.			2,000		4,000
Totals			6,663,530			9,166,851

RECAPITULATION.

Of the number of Fishermen, etc., and of the number and Value of Fishing Vessels, Boats, Nets, etc., for the whole Province of Nova Scotia, for the year 1915-16.

——	Number.	Value.
		$
Steam fishing vessels (tonnage 282)	10	37,950
Sailing and gasoline vessels	637	1,754,144
Boats (sail)	8,847	307,681
" (gasoline)	4,678	1,131,973
Carrying Smacks	210	114,960
Gill nets, seines, trap and smelt nets, etc	68,313	755,251
Weirs	194	37,440
Trawls	17,606	181,873
Hand lines	33,526	27,235
Lobster traps	778,519	728,537
" canneries	227	293,715
Salmon "		
Clam "	4	1,500
Freezers and ice-houses	344	689,275
Smoke and fish-houses	5,188	611,825
Fishing piers and wharves	1,902	1,225,753
Total value		7,899,112

Number of men employed on vessels	5,045
" " boats	17,320
" " carrying smacks	400
" persons employed in fish-houses, freezers, canneries, etc	6,297
Total persons employed	29,062

APPENDIX 4.

QUEBEC.

Gulf Division, Sea Fisheries District: Comprising the Counties of Bonaventure, Gaspé, Saguenay, and Rimouski. Acting Inspector, Capt. Jos. Chalifour, L'Islet.

Gulf Division, Inland Fisheries District: Comprising the Counties of Temiscouata, Kamouraska, L'Islet, Montmagny, Chicoutimi, Charlevoix, Montmorency, and Quebec. Acting Inspector, Capt. Jos. Chalifour, L'Islet.

N.B.—The fisheries of the remaining portions of Quebec, are administered by the Provincial Government.

[*Translation.*]

REPORT ON THE FISHERIES OF THE GULF DIVISION.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit to you my report on the fisheries in the District of the Gulf of St. Lawrence for the fiscal year ending the 31st March, 1916.

On the 26th April I left Quebec with the late Commander Wakeham for Souris, Prince Edward Island, to meet Doctors Hjort and Wellie, well-known experts on fisheries. These gentlemen had come to make, on board the *Princess*, a voyage of scientific investigations with respect to fishing in the gulf of St. Lawrence. On April 30, we were in Charlottetown. The straits of Northumberland and the gulf of St. Lawrence were covered with solid ice, which extended to the north of Magdalen islands. Doctors Hjort and Wellie, being unable to carry on their technical studies under these conditions, decided to go and take observations on the Atlantic coast, while I went to Gaspé, accompanying Commander Wakeham, whose health was failing rapidly. He died a few days later, much regretted by all who knew him. He had done a great deal in the interests of the fisheries during the thirty-seven years he devoted to them. He was also regretted by all the fishermen, especially by those of Labrador, the majority of whom were poor, and had found in him a generous protector and a kind adviser.

It is since the death of the late commander that I, following your instructions, have performed the duties of temporary inspector of fisheries, for the division of the Gulf. After having made a voyage during which Doctors Hjort and Wellie took observations, I went to Labrador. Fishing had been going on for twelve days and was very promising, but an iceberg, extending over 40 miles, and driven by an east wind, passed the strait and stopped by the coast, suspending operations for a fortnight.

On the Magdalen islands, the ice caused great delay and there was very little herring fishing, which was detrimental to the fishermen, as it prevented them from supplying foreign boats with bait.

In general, in spite of the late season, fishing was good all through the district, more especially on the coast of Gaspé and Chaleur bay, where fish were more plentiful than ever, and the fishermen were more numerous than last year.

HERRING.

There was a drop in the spring herring fishing. As I have already stated, it was almost nil at certain places on account of the unfavourable weather which we had at the beginning of the season. Late in June, ice could be seen at Mutton bay. By way of compensation, this fish, which had almost disappeared for several years past from the coast of Labrador, was present there in rather large quantity and of a very good quality. However, the fishermen, not having a sufficient supply of barrels, were unable to profit by the fact.

On the coast of Gaspé and in Chaleur bay, the supply was just sufficient for canning.

The epidemic which raged on the herring during the past few years seems to have disappeared.

COD.

Everywhere this fishing was better than in 1914. In the county of Gaspé and in Chaleur bay, the cod was exceptionally nice. The price remained high and the fishermen realized fine profits, for a large quantity of their produce was sent to Europe, to the belligerent nations, on French and English vessels which, for the first time, came to these regions for such supplies.

Several mills were closed down during the course of the season; others reduced their staff, and the men, having no work, turned to fishing. Thus, the increase in the number of fishermen, the facility in selling their produce, and the prices obtained, largely contributed to develop this industry throughout the district of the Gulf.

The dog-fish which came in large numbers in former years, and hunted the cod, seem to be disappearing. There have been a few, but only during the first two weeks in August, and the fishermen did not suffer any damage.

SALMON.

In the counties of Bonaventure and of Gaspé there was abundant salmon fishing, and prices obtained were satisfactory. On the north coast of Labrador, the results were not so good. The latter drop must not be attributed to the scarcity of salmon, but to the difficulty of transportation to dispose of this fish. That is the reason the prices were so low in this division.

LOBSTERS.

Lobster fishing was better than it was last year, but it yielded less money. The canned fish used to sell at $22 per 48-pound box. This year the general price was only $12.

Two bad storms at the end of June did damage to the fishermen of Anticosti by destroying a large number of lobster traps, which were not replaced owing to the uncertainty of the market and the excessive drop in prices. Several factories closed before the expiration of the time set by the law.

MACKEREL.

Mackerel fishing in general was good. It sold at $13 per barrel. On the Magdalen islands this fishery was really surprising with respect to both quantity and quality.

WHALES.

At the whaling station, eighty-four whales were caught. Although the number of these mammals was equal to that of previous years, the quantity of oil obtained was less.

In concluding, I beg to state that there was no infringement of the law, and that the fishery regulations were respected.

I am, sir,

Your obedient servant,

J. CHALIFOUR,

Acting Inspector of Fisheries.

RETURN showing the number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the Gulf Division, (Sea Fisheries District) Province of Quebec, during the year 1915-16.

BONAVENTURE COUNTY.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.																Fishing Gear.		
		Steam Vessels.				Sailing and Gasoline Vessels.				Boats.					Carrying Smacks.			Gill Nets, Seines, Trap and Smelt Nets, etc.		
		Number.	Tons.	Value.	Men.	(20 to 40 tons) Number.	(10 to 20 tons) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.	Value.	Number.
				$				$			$		$			$			$	
1	Restigouche Subdivision (Head of tide to Miguasha)	....	...	.....	....	... ..	....	..	. .	20	500	.....	.....	40	....	.....	.. .	20	500	1
2	Bonaventure Subdivision (Miguasha to Paspebiac)	....	....	.....	.	....	.....	.....	...	175	6500	2	600	250	6	11000	28	390	6500	2
3	Port Daniel Subdivision (Paspebiac to Point Macquereau	....	..	.....	....	1	....	1500	4	200	13000	15	4000	480	. ...	.....	.....	475	7000	3
	Totals	..	...	.....	....	1	...	1500	4	455	2000	17	4600	770	6	11000	28	885	14000	

GASPÉ COUNTY.

4	Grand River Subdivision (Point Macquereau to Barachois)	...	...	.....	..	.....	. ...	....	...	468	41800	115	33260	1543	5	1250	5	1827	31187	4
5	Gaspé Subdivision (Barachois to Fame Point)	....	....	.....	....	.....	.....	.....	.....	677	54180	35	8250	1424	.. ..	.....	.....	1470	26944	5
6	Mont Louis and Ste. Anne Subdivision (Fame Point to Cape Chatte)	....	....	.....	....	.....	.....	.....	....	407	15530	37	6650	625	. ..	....	.....	979	11670	6
7	Magdalen Islands (Southern Subdivision)	....	....	.....	.. .	4	7	6300	71	418	21200	127	23200	1474	14	3500	28	4294	38130	7
8	Magdalen Islands (Northern Subdivision)	...	...	....	....	4	1	4800	43	260	7495	60	13750	780	1	250	2	784	18950	8
	Totals	...	...	.....	...	8	8	11100	114	2230	143205	374	85110	5846	20	5000	35	9354	129881	

SAGUENAY COUNTY.

9	Godbout Subdivision (Tadousac to Jambons)	....	....	.....	...	3	11	12800	28	20	3200	11	3495	27	.....	...	...	361	19000	9
10	Moisie Subdivision (Jambons to Pigons)	4	653	90000	110	.....	.. ..	.....	...	71	2975	5	9500	105	.....	.....	.. ..	279	5715	10
11	Mingan Subdivision (Pigons to St. Charles)	2	27	1100	8	.....	....	....	...	272	30950	6	1600	550	.....	.....	.....	5665	5290	11
12	Natashquan Subdivision (St. Charles to Natashquan Point)	....	....	.....	.....	...	..	. ...	.....	55	13750	3	3000	170	1	150	2	7	875	12
13	Romaine Subdivision (Natashquan Point to Cape Whittle)	1	18	600	6	....	.....	.....	.....	24	1430	10	1350	58	2	175	4	1510	770	13
14	St. Augustine Subdivision (Cape Whittle to Chicatica)	....	....	.....	....	.....	.....	.....	....	159	10200	22	4135	264	. .	.....	.....	234	11352	14
15	Bonne Espérance Subdivision (Chicatica to Blanc Sablons)	....	....	.....	...	.....	.....	.....	...	175	8453	35	8545	365	... .	...	.. .	222	20439	15
16	Anticosti Island	1	42	10000	7	....	... .	.. ..	.....	4	575	... .	....	6	.....	.....	...	15	1693	16
	Totals	8	740	101700	131	3	11	12800	28	780	71533	92	31625	1545	3	325	6	8293	65194	

RIMOUSKI COUNTY.

17	Rimouski County—Totals	8	92	13500	32	....	.....	.....	....	59	5500	5	2800	112	. .	.....	. .	125	2120	17

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of all Fishing Gear, etc., used in the Fishing Industry in the Gulf Division, (Sea Fisheries District) Province of Quebec, during the year 1915-16—*Concluded.*

BONAVENTURE COUNTY.

Number.	Fishing Districts.	Fishing Gear.								Canneries.				Other Material.						Persons Employed in Canneries, Freezers and Fish Houses.	Number.
		Weirs.		Trawls.		Hand Lines.		Lobster Traps.		Lobster Canneries.		Salmon Canneries.		Freezers and Ice Houses.		Smoke and Fish Houses.		Fishing Piers and Wharves.			
		Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
			$		$		$		$		$		$		$		$		$		
1	Restigouche Subdivision (Head of tide to Miguasha)	....	....	....	....	40	250	....	....	....	....	....	....	3	450	....	....	....	....	....	1
2	Bonaventure Subdivision (Miguasha to Paspebiac)	....	....	30	600	500	300	600	400	1	500	....	....	7	2000	80	90000	1	15000	150	2
3	Port Daniel Subdivision (Paspebiac to Point Macquereau)	....	....	160	3500	1000	600	3000	2000	6	6500	....	....	21	5000	50	30000	....	....	175	3
	Totals	....	....	190	4100	1540	1150	3600	2400	7	7000	....	....	31	7450	130	120000	1	15000	325	

GASPÉ COUNTY.

4	Grand River Subdivision (Point Macquereau to Barachois)	....	....	347	5205	3102	1701	9365	9470	9	12000	....	....	14	750	271	39595	6	3400	708	4
5	Gaspé Subdivision (Barachois to Fame Point)	....	....	....	....	4518	2259	....	....	....	....	....	....	39	2900	622	35890	16	31545	806	5
6	Mont Louis and Ste. Anne Subdivision (Fame Point to Cape Chatte)	....	....	....	....	1250	2425	....	....	....	....	....	....	25	1850	....	....	....	....	33	6
7	Magdalen Islands (Southern Subdivision)	....	....	270	6950	3520	1475	30525	31525	11	13450	....	....	18	16950	294	11100	8	7000	238	7
8	Magdalen Islands (Northern Subdivision)	....	....	492	738	885	265	32200	32200	24	18300	....	....	9	4850	20	5877	13	3200	300	8
	Totals	....	....	1109	12893	13575	8135	72690	73195	47	43750	....	....	105	30300	1207	92460	43	45145	2085	

SAGUENAY COUNTY.

9	Godbout Sub-division (Tadousac to Jambons)	40	2000	4	240	276	207	50	50	1	400			73	8280	19	1670			9	9
10	Moisie Subdivision (Jambons to Pigons)					132	132							4	110	41	1140	1	50	80	10
11	Mingan Subdivision (Pigons to St. Charles)					1612	1609	200	200	1	75			2	400	50	35000			727	11
12	Natashquan Subdivision (St. Charles to Natashquan Point)					560	286	910	1365	6	1265	3	550			108	16205	1	300	21	12
13	Romaine Subdivision (Natashquan Point to Cape Whittle)					119	89	2075	2075	3	300	2	75			19	655	5	30	68	13
14	St. Augustine Subdivision (Cape Whittle to Chicatica)			13	112	495	495	1360	1360	7	600					198	35420	88	1760	110	14
15	Bonne Espérance Subdivision (Chicatica to Blanc Sablons)			63	578	802	401									126	15775	72	2953	30	15
16	Anticosti Island			6	30	25	25	1300	650	1	5000			2	2020	1	50			21	16
	Totals	40	2000	86	960	4021	3238	5895	5700	19	7640	5	625	82	11800	562	105915	167	5093	1066	

RIMOUSKI COUNTY.

17	Rimouski County—Totals	8	215											1	825	2	900			26	17

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the Gulf Division (Sea Fisheries District), Province of Quebec, during the year 1915-16.

BONAVENTURE COUNTY.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Sardines, brl.	Sardines, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Number.
			$		$		$		$		$		$		$		$		$		$	
1	Restigouche Subdivision (head of tide to Miguasha)	175	1400	.. ..	.....	..	....	.....	.....	.....	.....	....	.....	.....	.....	..	...	....	..	...	...	1
2	Bonaventure Subdivision (Miguasha to Paspebiac Point)	1270	10160	382	1146	18650	26110	150	120	180	144	11600	2610	250	600	....	....	.. ..	....	..	.	2
3	Port Daniel Subdivision (Paspebiac to Point Macquereau)	670	5360	873	2619	49200	68880	300	240	420	336	8850	1991	505	1212	...	....	.. ..	....	...	...	3
	Totals	2115	16920	1255	3765	67850	94990	450	360	600	480	20450	4601	755	1812	....	..	....	....	...	...	

GASPÉ COUNTY.

4	Grand River Subdivision (Point Macquereau to Barachois)	391	3128	2368	10656	227169	340753	1520	1520	....	.....	36503	18251	260	1300	...	....	.....	...	...	...	4
5	Gaspé Subdivision (Barachois to Fame Point)	275	2200	.....	.....	193389	290083	2720	2720	.....	. .	36957	18479	.....	.....	....	....	.....	.....	...	...	5
6	Mont Louis and Ste. Anne Subdivision (Fame Point to Cape Chatte)	635	5080	.....	.....	55835	83752	... .	.....	.....	..	10230	5115	.....	.....	.. ..	....	139	695	...	...	6
7	Magdalen Islands (Southern Subdivision)	. ...	.....	8180	36810	66930	100395	.....	.....	. .	.. ..	20466	10233	31830	79575	...	...	....	....	...	...	7
8	Magdalen Islands (Northern Subdivision)	....	.....	10294	46323	4650	6975	150	150	.....	...	3550	1775	9204	23010	...	....	....	....	...	...	8
	Totals	1301	10408	20842	93789	547973	821959	4390	4390	..	.....	107706	53853	41294	103885	....	...	139	695	...	...	

*Cwt. = 100 pounds.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the Gulf Division (Sea District), Province of Quebec, during the year 1915-1916.—*Continued.*

SAGUENAY COUNTY.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Lobsters, cwt.	Lobsters, value.	Cod, cwt.	Cod, value.	Haddock, cwt.	Haddock, value.	Hake and Cusk, cwt.	Hake and Cusk, value.	Herring, cwt.	Herring, value.	Mackerel, cwt.	Mackerel, value.	Sardines, cwt.	Sardines, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Number.
			$		$		$		$		$		$		$		$		$		$	
9	Godbont Subdivision (Tadousac to Jambons)	2910	14550	.....	.....	1479	1479	....	.....	....	.....	1104	552	1	3	68	544	120	600	2	2	9
10	Moisie Subdivision (Jambons to Pigons)	708	3540	.	...	5598	5598	.....	.. ..	.....	.. ..	495	247	36	108	....	...	103	515	...	...	10
11	Mingan Subdivision (Pigons to St. Charles)	963	4815	28	112	53851	53851	.....	.....	.....	.....	126	63	.....	.....	.....	.....	4	20	...	...	11
12	Natashquan Subdivision (St. Charles to Natashquan Point)	1755	8775	194	776	19704	19704	.....	....	.....	.....	634	317	.....	.....	..	....	2	10	...	...	12
13	Romaine Subdivision (Natashquan Point to Cape Whittle)	384	1920	332	1328	1862	1862	.....	.....	.....	.....	4860	2430	.....	.....	.....	.....	14	70	...	...	13
14	St. Augustin Subdivision (Cape Whittle to Chicatica)	1002	5010	492	1968	26677	26677	.....	.....	.....	.....	2292	1146	.....	.....	.....	.....	4	20	...	...	14
15	Bonne Esperance Subdivision (Chicatica to Blanc Sablons)	231	1155	.....	.....	6932	6932	....	.....	.....	.....	744	372	.....	.....	...	....	.....	.....	...	...	15
16	Anticosti Island	201	1005	445	1780	530	530	.....	....	.....	.....	92	46	.....	.....	....	...	4	20	...	...	16
	Totals	8154	40770	1491	5964	116633	116633	.....	.....	.....	... ..	10347	5173	37	111	68	544	251	1255	2	2	

RIMOUSKI COUNTY.

17	Rimouski County (Totals)	156	1248	.....	....	25	25	.....	...	.....	.....	1200	600	....	.....	....	...	...	....	...	...	17

*Cwt. = 100 pounds.

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the Gulf Division (Sea Fisheries), Province of Quebec, during the year 1915-16.

BONAVENTURE COUNTY.

Number.	Fishing Districts.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Sturgeon, cwt.	Sturgeon, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Capelin, brl.	Capelin, value.	Mixed fish, cwt.	Mixed fish, value.	Squid, brl.	Squid, value.	Clams, brl.	Clams, value.	Hair seals, No.	Hair seals, value.	Belugas, No.	Belugas, value.	Whales, No.	Whales, value.	Number.
			$		$		$		$		$		$		$		$		$		$		$		$	
1	Restigouche Subdivision (head of tide to Miguasha)	.....	.....	...	.....	.....	.....	.....	.....	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	...	...	1
2	Bonaventure Subdivision (Miguasha to Paspebiac Point)	400	440	10	50	....	....	...	....	...	....	300	75	...	....	....	....	325	650	....	...		..	...	.....	2
3	Port Daniel Subdivision (Paspebiac to Point Macquereau)	710	781	10	50	.	....	....	....	....	. ..	300	75	...	....	350	525	630	1260	....	....	....	....	....	.	3
	Totals	1110	1221	20	100	....	....	....	....	....	....	600	150	....	....	350	525	955	1910	....	....	. .	....	.....	.....	

GASPÉ COUNTY.

4	Grand River Subdivision (Point Macquereau to Barachois)	742	2226	....	. ..	...	....	....	....	....	....	...	....	...	...	445	890	340	340	....	...	....	....	.....	....	4
5	Gaspé Subdivision (Barachois to Fame Point)	....	....	..	..	....	....	.. .	....	....	...	...	....	...	.....	.....	....	250	250	....	...	....	....	..	.....	5
6	Mont Louis and Ste. Anne Subdivision (Fame Point to Cape Chatte)	....	.....	94	470	.. .	....	....	...	47	94	...	....	...	..	.....	....	...	...	...	....	....	....	.....	...	6
7	Magdalen Islands (Southern Subdivision)	216	630	. .	....	...	..	....	....	....	....	....	....	....	....	.....	....	410	820	1500	1500	....	....	.....	..	7
8	Magdalen Islands (Northern Subdivision)	....	.....	..	....	....	..	....	....	....	....	....	....	....	....	.....	...	60	120	435	435	. ..	....	.....	....	8
	Totals	952	2856	94	470	...	...	....	....	47	94	...	...	...	....	445	890	1060	1530	1935	1935	...	...	.....	....	

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in the Gulf Division (Sea District), Province of Quebec, during the year 1915-16—*Concluded.*

SAGUENAY COUNTY.

Number.	Fishing Districts.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Sturgeon, cwt.	Sturgeon, value.	Eels, cwt.	Eels, value.	Tom-cod, cwt.	Tom-cod, value.	Capelin, brl.	Capelin, value.	Mixed fish, cwt.	Mixed fish, value.	Squid, brl.	Squid, value.	Clams, brl.	Clams, value.	Hair seals, No.	Hair seals, value.	Belugas, No.	Belugas, value.	Whales, No.	Whale, value.	Number.
			$		$		$		$		$		$		$		$		$		$		$		$	
9	Godbout Subdivision (Tadousac to Jambons)	494	1482	133	665	30	300	35	245	131	131	...	....	23	46	4	8	26	52	589	589	145	290	.....	..	9
10	Moisie Subdivision (Jambons to Pigons)	.....	.....	...	....	...	...	....	...	...	....	127	64	.	....	180	360	43	86	4464	4464	605	1210	84	58800	10
11	Mingan Subdivision (Pigons to St. Charles)	....	.....	33	165	....	....	....	....	....	....	....	....	....	....	....	...	20	40	310	310	....	....	....	.. ..	11
12	Natashquan Subdivision (St. Charles to Natashquan Point)	... ..	.....	....	....	....	...	....	...	....	...	....	.. .	....	...	10	20	100	200	...	...	..	....	.....	.....	12
13	Romaine Subdivision (Natashquan Point to Cape Whittle)	.....	.....	16	80	....	....	....	.	....	....	....	....	....	....	. .	....	46	92	127	127	. .	...	...	.....	13
14	St. Augustin Subdivision (Cape Whittle to Chicatica)	.	.....	96	480	....	....	..	....	....	....	1000	500	.. .	....	10	20	....	....	630	630	..	...	.....	.....	14
15	Bonne Esperance Subdivision (Chicatica to Blanc Sablons)	... ..	....	48	240	....	....	....	....	....	...	460	230	....	...	....	...	39	78	411	411	....	..	.....	...	15
16	Anticosti Island	.....	....	....	...	....	....	....	....	....	....	....	....	..	....	. .	...	6	12	....	....	....	..	.....	.....	16
	Totals	494	1482	326	1630	30	300	35	245	131	131	1587	794	23	46	204	408	280	560	6531	6531	750	1500	84	58800	

RIMOUSKI COUNTY.

17	Rimouski County (Totals)	15	45	4	20	....	....	....	....	.. .	....	..	...	15	30	.. .	....	....	...	.	....	...	....	.. .	..	17

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for the Gulf Division (Sea Fisheries District), Province of Quebec, during the Year 1915-16.

BONAVENTURE COUNTY.

Number.	Fishing Districts.	Salmon, used fresh and frozen, *cwt.	Salmon, canned, cases.	Salmon, salted, cwt.	Lobsters, canned, cases	Lobsters, shipped in shell, cwt.	Cod, used fresh, cwt.	Cod, shipped green-salted, cwt.	Cod, dried, †quintals.	Haddock, used fresh, cwt.	Haddock, dried, quintals.	Hake and cusk, dried, quintals.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, pickled, brl.	Herring, used as bait, brl.	Herring, used as fertilizer, brl.	Mackerel, used fresh, cwt.	Mackerel, salted, brl.	Number.
1	Restigouche Subdivision (Head of tide to Miguasha)	175																		1
2	Bonaventure Subdivision (Miguasha to Paspebiac Point)	1270			186	10		4000	3550		50	60			200	1030	4500	10	80	2
3	Port Daniel Subdivision (Paspebiac to Point Macquereau)	670			414	45		11400	8800		100	140				2925	1500	10	165	3
	Totals	2115			60	55		15400	12350		150	200			200	3925	6000	20	245	
	Rates, $	9			12	3		2.50	6		3.50	3.50			4	1	25c	3	8	
	Values, $	19035			7200	165		38500	74100		525	700			800	3925	1500	60	1960	

GASPE COUNTY.

4	Grand River Subdivision (Point Macquereau to Barachois)	391			1177	14	1375	34624	52182	350	390		85			18209		260		4
5	Gaspé Subdivision (Barachois to Fame Point)	275					2173	2560	62032	50	890		135		40	18351				5
6	Mont Louis and Ste. Anne Subdivision (Fame Point to Cape Chatte)	635						1975	17295						450	3620	820			6
7	Magdalen Islands (Southern Subdivision)				4090				22310				925	1200	5067	270	700		10610	7

8	Magdalen Islands (Northern Subdivision)	.....	...	.....	5147	.....	.....	.....	1550	....	50	....	...	....	850	500	.....	....	3068	8
	Totals	1301	...	...	10414	14	3548	39159	155369	400	1330	...	1145	1200	6407	40950	1520	260	13678	
	Rates	$ 9 50	.....	.....	12.50	7	1.50	3	5.50	1	4	....	50c.	1	2.50	1.10	50c.	4	9	
	Values	$ 12360	...	.....	130175	98	5322	117477	854530	400	5320	...	572	1200	16018	45045	760	1040	123102	

SAGUENAY COUNTY.

9	Godbout Subdivision (Tadousac to Jambons)	2880	.....	20	.....	.....	81	690	0	....	...	...	195	9	101	17	277	1	...	9
10	Moisie Subdivision (Jambons to Pigon)	645	...	42	.....	.....	....	2724	50	....	.....	....	...	...	145	10	20	.....	12	10
11	Mingan Subdivision (Pigon to St Charles)	405	....	372	14	...	....	875	17367	....	...	....	...	...	42	...	.....	....	.....	11
12	Natashquan Subdivision (St. Charles to Natashquan Point)	887	75	536	97	...	.....	450	6268	...	.....	....	...	..	.....	317	...	.....	.....	12
13	Romaine Subdivision (Natashquan Point to Cape Whittle)	.....	25	242	166	..	....	133	532	...	..	....	...	.....	1620	...	.....	...	.....	13
14	St. Augustin Subdivision (Cape Whittle to Chicatica)	.....	...	668	246	....	...	2432	7271	...	.....	..	.....	.....	566	297	.....	...	....	14
15	Bonne Esperance Subdivision (Chicatica to Blanc Sablon)	5	....	151	.....	....	255	187	2101	....	....	....	50	....	205	38	...	...	.....	15
16	Anticosti Island	....	237	....	215	13	50	210	20	..	..	...	....	....	.....	46	.	.....	.....	16
	Totals	4822	337	2031	738	13	386	7701	33615	...	.....	....	248	9	2679	725	297	1	12	
	Rates	$ 9	8	6	14	4	1.50	2.50	5	....	...	....	1	2	4	1.50	50c.	5	12	
	Values	$ 43398	2696	12186	10332	60	579	19252	168075	...	...	.	248	18	10716	1088	148	5	144	

RIMOUSKI COUNTY.

17	Rimouski County	156	.....	.....	.....	.....	25	...	.....	....	.....	....	1200	...	...	.....	.....	.....	...	17
	Rates	$ 9	.....	...	.....	.....	1.50	.....	..	.	....	....	1	.....	..	....	...	...	...	
	Values	$ 1404	....	.....	....	.....	37	.....	...	....	.	...	1200	.....	.....	.....	...	....	..	

* Cwt.=100 pounds. † Quintal=112 pounds.

THE CATCH MARKETED.

RETURN showing the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for the **Gulf Division** (Sea Fisheries District), Province of **Quebec**, during the year 1915-16.—*Concluded.*

BONAVENTURE COUNTY.

Number.	Fishing Districts.	Sardines, sold fresh or salted, brl.	Halibut, used fresh, cwt.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Sturgeon, used fresh, cwt.	Eels, used fresh, cwt.	Tom-cod, used fresh cwt.	Capelin, used fresh, brl.	Mixed Fish, used fresh, cwt.	Squid, used as bait, brl.	Clams and Quahaugs, used fresh, brl.	Clams and Quahaugs, canned, cases.	Seal oil, gal.	Tongues and Sounds, pickled or dried, cwt.	Whale Fertilizer, ton.	Whalebone, ton.	Hair Seal Skins, No.	Beluga Skins, No.	Fish Oil, gal.	Whale Oil, gal.	Number.
1	Restigouche Subdivision (Head of tide to Miguasha)	...	....	.	. ...	....	...	...	...	....	..	. ..	....	...	....	. .	.....	....	.....	....	.....	...	1
2	Bonaventure Subdivision (Miguasha to Paspebiac Point).	....	....	....	400	10	...	. .	...	300	..	...	325	....	.....	....	.....	... ..		.....	4500	....	2
3	Port Daniel Subdivision (Paspebiac to Point Macquereau)	..	..	....	710	10	..	...	...	300	...	350	630	....	. .	.	...	...	.....	.	12500	....	3
	Totals.	...	...	....	1110	20	..	...	....	600	...	350	955	....	.....	...	.....	....	.. .	.. ...	17000	... .	
	Rates.....$	....	...	....	1.10	5	....	....	..	40c	....	1 50	2	.. .	...	....	..	....	.....	.....	40c.	.... .	
	Values.. ....$	....	....	....	1221	100	....	...	....	240	....	525	1910	...	.....	....	..	....	....	.....	6803	.....	

Total value ....$ 159,266

GASPE COUNTY.

4	Grand River Subdivision (Point Macquereau to Barachois).	....	....	....	742	.	...	....	....	....	....	445	340	..	....	...	. .	...	.....	....	37700	.....	4
5	Gaspé Subdivision (Barachois to Fame Point)	....	....	....	....	..	....	....	....	....	...	....	250	....	.....	....	.....	.....	.... .	..	46300	.....	5
6	Mont Louis and Ste. Anne Subdivision (Fame Point to Cape Chatte).... ...	...	139	..	. .	94	....	....	47	..	....	....	....	...	.....	....	.....	...	....	...	13120	...	6
7	Magdalen Islands (Southern Subdivision)....	...	....	....	210	.. .	....	....	...	....	...	..	410	....	3000	105	.... .	..	1500	..	7100	.. .	7

8	Magdalen Islands (Northern Subdivision)	....	...	...	..	....	....	....	..	...	...	....	60	....	876	....	..	...	435	...	.....	.....	8
	Totals	....	139	....	952	94	....	..	47	....	....	445	1060	....	3870	105	.....	....	1935	...	104220	. . .	
	Rates	$	..	6	..	4	5	....	...	5	....	....	2	2	...	43c.	2	....	...	1.75	....	29c.	. . .	
	Values	$	....	834	....	3808	470	....	....	235	..	...	890	2120	....	1664	210	.....	..	3386	....	30224	..	

Total value ..... $ 1,357,260

SAGUENAY COUNTY.

9	Godbout Subdivision (Tadousac to Jambons)	68	120	2	494	133	30	35	131	...	23	4	26	...	6227	8	.. ..	...	589	145	. .	.....	9
10	Moisie Subdivision (Jambons to Pigon)	..	103	....	.....	..	....	....	....	127	....	180	43	....	22320	....	3617	10	4464	605	....	171000	10
11	Mingan Subdivision (Pigon to St. Charles)	....	4	....	...	33	....	....	....	....	....	....	20	....	620	....	. ..	....	310	.....	16747	.....	11
12	Natashquan Subdivision (St. Charles to Natashquan Point)	....	2	....	.....	. .	....	. .	..	....	....	16	100	....	.....	....	.....	....	.....	.....	6106	.....	12
13	Romaine Subdivision (Natashquan Point to Cape Whittle)	....	14	..	... ..	16	....	....	....	....	....	....	44	2	254	1	....	...	127	.....	446	... ..	13
14	St. Augustin Subdivision (Cape Whittle to Chicatica)	....	4	..	.....	96	....	...	....	1000	.. .	10	...	....	1346	25	....	....	630	.....	8597	....	14
15	Bonne Esperance Subdivision (Chicatica to Blanc Sablon)	...	....	....	....	48	....	....	..	460	. .	...	39	....	822	....	.....	....	411	.....	14183	.. ..	15
16	Anticosti Island	....	4	....	.....	....	....	....	....	....	....	....	6	....	.....	...	.....	....	....	. ..	45	....	16
	Totals	68	251	2	494	326	30	35	131	1587	23	204	278	2	31589	34	3617	10	6531	750	46124	171000	
	Rates	$	16	6	2	4	5	10	7	1	1	3	2	2	6	43c.	5	3.50	90	1.50	5	30c.	29c.	
	Values	$	680	1506	4	1976	1630	300	245	131	1587	69	40	556	12	13583	170	12659	900	9796	3750	13837	49590	

Total value ..... $ 382,334

RIMOUSKI COUNTY.

17	Rimouski County	..	....	...	15	4	....	....	....	...	15	...	..	....	... ..	...	...	....	....	.....	....	..	17
	Rates	$	....	....	....	4	5	....	...	....	....	3	...	....	....	....	....	..	..	...	.....	..	....	
	Values	$	...	...	....	60	20	....	....	..	....	45	....	.....	...	.....	....	... .	....	.. .	. . .	....	....	

Total value ..... $ 2,766

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the Gulf Division (Sea Fisheries District) Province of Quebec, during the Year 1915-16.

Kinds of Fish.		Caught and Landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	$
Salmon	cwt.	11,726	69,346			
" used fresh	"			8,394	76,197	
" canned	cases.			337	2,696	
" salted dry	cwt.			2,021	12,186	
						91,079
Lobsters	"	23,588	103,518			
" canned	cases.			11,752	147,707	
" shipped in shell	cwt.			84	323	
						148,030
Cod	"	732,481	1,033,607			
" used fresh	"			3,959	5,938	
" green—salted	"			62,260	175,229	
" dried	"			201,334	1,096,705	
						1,277,872
Haddock	"	4,840	4,750			
" used fresh	"			400	400	
" dried	"			1,480	5,845	
						6,245
Hake and Cusk	"	600	480			
" " dried	"			200		700
Herring	"	139,703	64,227			
" used fresh	"			2,593	2,020	
" smoked	"			1,209	1,218	
" pickled	brls.			9,286	27,534	
" used as bait	"			45,600	50,058	
" used as fertilizer	"			7,817	2,408	
						83,238
Mackerel	cwt.	42,086	105,808			
" used fresh	"			281	1,105	
" salted	brls.			13,935	125,206	
						126,311
Sardines	cwt.	68	544			
" sold fresh or salted	brls.			68		680
Halibut, used fresh	cwt.	390	1,950	390		2,340
Flounders	"	2	2	2		4
Smelts	"	2,571	5,604	2,571		7,065
Trout	"	444	2,220	444		2,220
Sturgeon	"	30	300	30		300
Eels	"	35	245	35		245
Tom cod	"	178	225	178		366
Capelin	brls.	2,187	944	2,187		1,827
Mixed Fish	cwt.	38	76	38		114
Squid	brls.	999	1,823	999		1,823
Clams	"	2,295	4,000			
" used fresh	"			2,293	4,586	
" canned	cases.			2	12	
						4,598
Hair Seals	No.	8,466	8,466			
Tongues and Sounds	cwt.			139		380
Belugas	No.	750	1,500			
Whales	"	84	58,800			
Hair Seal Skins	"			8,466		13,182
Beluga Skins	"			750		3,750
Fish Oil	gal.			107,344		50,861
Whale Oil	"			171,000		49,590
Seal Oil	"			35,459		15,247
Whale Fertilizer	cwt.			3,617		12,659
Whale Bone	tons.			10		900
Totals			1,468,435			1,901,626

RECAPITULATION.

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in the Gulf Division (Sea Fisheries District) Province of Quebec, for the Year 1915-16.

——	Number.	Value.
		$
Steam fishing vessels (tonnage 832)	16	115,200
Sailing and gasolene vessels	31	25,400
Boats (sail	3,524	240,238
" (gasolene)	488	124,135
Carrying Smacks	29	16,325
Gill nets, seines, trap and smelt nets, etc.	18,657	211,195
Weirs	48	4,150
Trawls	1,385	17,953
Hand lines	19.133	12,523
Lobster traps	82,185	81,295
" canneries	73	58,390
Salmon "	5	625
Freezers and ice-houses	219	50,375
Smoke and fish-houses	1,901	319,275
Fishing piers and wharves	211	65,238
Total	.....	1,342,317

Number of men employed on vessels	309
" " boats	8,273
" " carrying smacks	69
" persons employed in fish-houses, freezers, canneries, etc.	3,502
Total	12.153

INLAND FISHERIES.

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material, used in the Fishing Industry in the Inland Section of the Gulf Division, Province of Quebec, during the year 1915-16.

Number.	Fishing Districts.	Steam Vessels or Tugs.				Boats.					Gill-Nets.		Seines.		Weirs.		Freezers and Ice-houses.		Smoke and Fish-houses.		Persons employed in Freezers, Fish-houses, etc.	Number.
		Number.	Tons.	Value.	Men.	Sail	Value.	Gasolene.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
				$			$		$			$		$		$		$		$		
1	Temiscouata County	4	39	1950	20	22	1750	2	900	29	12	200	1	125	14	1500	2	950	1	400	13	1
2	Kamouraska "	12	24	1300	12	10	1500	1	1200	21	.....	.....	.....	.....	12	2100	2	800	3	500	10	2
3	L'Islet "	3	35	2300	13	14	1400	3	900	24	.....	.....	.....	.....	14	2800	1	400	.....	.....	4	3
4	Montmagny "	1	20	800	4	12	850	1	500	3	.....	.....	2	150	18	3200	1	300	.....	.....	15	4
5	Chicoutimi "	.....	.....	.....	.....	19	1300	2	900	14	.....	.....	.....	.....	8	900	1	400	.....	.....	25	5
6	Charlevoix "	4	84	3100	15	12	900	1	150	16	.....	.....	.....	.....	15	4800	2	850	.....	.....	.....	6
7	Montmorency "	.....	.....	.....	.....	8	500	2	850	8	.....	.....	.....	.....	13	3900	2	750	.....	.....	.....	7
8	Quebec "	.....	.....	.....	.....	12	725	4	1200	21	.....	.....	.....	.....	10	2800	3	2000	.....	.....	.....	8
	Totals	14	202	9450	64	109	8925	16	6600	136	12	200	3	275	104	22000	14	6450	4	900	67	

RETURN showing the Quantities and Values of all Fish caught and Marketed or consumed locally, for the Inland Section of the Gulf Division, Province of Quebec, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Trout, cwt.	Trout, value.	Whitefish, cwt.	Whitefish, value.	Bass, cwt.	Bass, value.	Pickerel, cwt.	Pickerel, value.	Sturgeon, cwt.	Sturgeon, value.	Eels, cwt.	Eels, value.	Herring, cwt.	Herring, value.	Smelts, cwt.	Smelts, value.	Shad, cwt.	Shad, value.	Mixed Fish, cwt. †	Mixed Fish, value.	Number.
			$		$		$		$		$		$		$		$		$		$		$	
1	Temiscouata County	8	80	10	100	....	.....	....	.....	....	....	4	20	12	60	925	1335	13	104	...	.....	9	36	1
2	Kamouraska "	10	100	3	30	4	40	2	20	...	...	3	15	48	240	730	980	21	168	....	.....	12	48	2
3	L'Islet "	....	.. .	...	....	12	120	13	130	....	..	8	40	35	175	...	.....	12	96	5	50	10	40	3
4	Montmagny "	2	20	....	.....	25	250	85	850	7	70	23	115	192	960	....	...	48	384	13	130	16	64	4
5	Chicoutimi "	21	859	21	210	..	.....	....	.....	....	.....	...	....	.	..	...	.....	....	....	....	. .	13	52	5
6	Charlevoix "	13	130	4	40	3	30	....	....	...	....	4	20	12	60	....	....	15	120	24	240	10	40	6
7	Montmorency "	3	30	15	150	10	100	12	96	5	50	15	75	259	1295	....	.....	39	312	200	2000	14	56	7
8	Quebec "	2	20	12	120	5	50	5	50	9	90	9	45	7	35	....	. ...	212	1696	12	120	16	64	8
	Totals	59	1239	65	650	59	590	117	1146	21	210	66	330	565	2825	1655	2315	360	2880	254	2540	100	400	

* Cwt. = 100 lbs. † "Mixed fish" includes greyling, bull-heads and ouananiche.

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material, used in the Fishing Industry in the Eastern Townships, Province of Quebec, during the year 1915–16.

Number.	Fishing Districts.	Boats.					Seines.		Hoop Nets.		Lines.		Piers and Wharves.		Persons employed in Freezers, Fish-houses, etc.
		Sail.	Value.	Gasolene.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.
	Eastern Townships.		$		$			$		$		$		$	
1	Counties of Chambly, Verchères and St. John	...	..	1	200	...	13	305	....	....	13	89	2	100	162
2	Counties of Missisquoi and Iberville	2	400	1	360	..	....	.....	4	100	11	55	..	....	50
3	Counties of Stanstead and Sherbrooke	.....	.....	.. ..	.....	.....	....	...	.....	.....	.....	.....	.....	.....	...
4	Counties of Shefford and Brome	....	....	.....	...	....	.....	.....	.....	.....	...	...	...	...	...
5	Counties of Yamaska, St. Hyacinthe, Bagot and Rouville	75	1500	16	3975	.....	.. ..	.	....	....	18	31			251
6	Counties of Richmond, Wolfe, Megantic and Beauce	.....	.....	.....	...	.....	....	..	....	....	.....	.....	..	.	. ...
	Totals	77	1900	18	4475	.....	13	305	1	100	42	175	2	100	463

RETURN showing the Quantities and Values of all Fish caught and Marketed or consumed locally, for the Eastern Townships, Province of Quebec, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Trout, cwt.	Trout, value.	Whitefish, cwt.	Whitefish, value.	Bass, cwt.	Bass, value.	Pickerel, cwt.	Pickerel, value.	Pike, cwt.	Pike, value.	Sturgeon, cwt.	Sturgeon, value.	Eels, cwt.	Eels, value.	Perch, cwt.	Perch, value.	Maskinongé, cwt.	Maskinongé, value.	Mixed Fish, cwt.	†Mixed Fish, value.
	Eastern Townships.		$		$		$		$		$		$		$		$		$		$		$
1	Counties of Chambly, Verchères and St. John	....	....	....	....	18	360	35	350	30	300	215	1600	46	575	165	1231	43	301	24	288	700	4900
2	Counties of Missisquoi and Iberville	....	....	....	....	..	....	..	....	4	48	42	336	....	....	762	6096	50	400	..	....	128	1024
3	Counties of Stanstead and Sherbrooke	5	75	20	240	....	....	30	300	5	50	50	500	...	....	3	30	100	500	....	...	50	550
4	Counties of Shefford and Brome	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
5	Counties of Yamaska, St. Hyacinthe, Bagot and Rouville	...	...	...	...	....	...	4	32	107	1177	516	2550	...	....	910	4550	1153	5765	103	1133	2802	19614
6	Counties of Richmond, Wolfe, Megantic and Beauce	....	....	....	....	..	....	...	....	....	....	....	....	...	....	...	.....	..	..	...	....	....	.....
	Totals	5	75	20	240	18	360	69	682	146	1575	817	4986	46	575	1840	11907	1346	6966	127	1421	3680	26088

* Cwt. =100 lbs. † "Mixed fish" includes greyling, bull-heads and ouananiche.

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material used in the Fishing Industry, from the boundary line, County of Huntingdon, to Bellechasse on the South Shore, and from the County of Portneuf to County of Soulanges, inclusive, on the North Shore, of the Province of Quebec, during the year 1915-16.

Number.	Fishing Districts.	Boats.				Gill-Nets.		Seines.		Hoop-Nets.		Lines.		Weirs.		Freezers and Ice-Houses.		Persons employed in Freezers, Fish-houses, etc.	Number.
		Sail.	Value.	Gasolene.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
			$		$		$		$		$		$		$		$		
1	Lake St. Francis and tributaries							1	20			2	5					6	1
2	Chateauguay and Lake St. Louis	9	198					6	180									9	2
3	Laprairie County																		3
4	Chambly "																		4
5	Verchères "							13	9	11	66							99	5
6	Richelieu "																		6
7	Yamaska "	75	1500	16	3975					368	1840	18	31					251	7
8	Nicolet "	33	448	6	1040			9	138	75	1092	102	102					183	8
9	Champlain and St. Maurice Counties																		9
10	Maskinongé and Berthier "																		10
11	L'Assomption and Terrebonne "																		11
12	Laval and Lake of the Two Mountains Counties																		12
13	Hochelaga and Jacques Cartier Counties																		13
14	Vaudreuil County			3	1000	15	45					5	15					66	14
15	Bellechasse	45	1392	1	240									80	45200	30	1665	300	15
		162	3538	26	6255	15	45	29	347	454	2998	127	153	80	45200	30	1665	914	

RETURN showing the Quantities and Values of all Fish caught and Marketed or consumed locally, from the boundary line, County of **Huntingdon**, to **Bellechasse** on the South Shore, and from the County of **Portneuf**, to County of **Soulanges**, inclusive, on the North Shore of the Province of **Quebec**, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Whitefish, cwt.	Whitefish, value.	Bass, cwt.	Bass, value.	Pickerel, cwt.	Pickerel, value.	Pike, cwt.	Pike, value.	Sturgeon, cwt	Sturgeon, value.	Eels, cwt.	Eels, value.	Perch, cwt.	Perch, value.	Maskinongé, cwt.	Maskinongé, value.	Mixed Fish, cwt.	Mixed Fish, value.	Number.
			$		$		$		$		$		$		$		$		$		$	
1	Lake St. Francis and tributaries	....	....	....	....	....	....	....	....	....	....	19	190	7	70	2	12	.....	....	5	15	1
2	Chateauguay and Lake St. Louis	....	....	....	....	....	....	9	72	100	800	35	330	123	984	184	1104	2	20	....	....	2
3	Laprairie County	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	431	2586	3
4	Chambly "	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4
5	Verchères "	....	.	18	360	....	....	30	300	95	760	56	448	45	270	43	301	.....	.....	128	1024	5
6	Richelieu "	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	6
7	Yamaska "	....	....	....	....	....	....	107	1177	505	2525	.....	....	907	4535	1153	5765	100	1100	2802	19614	7
8	Nicolet "	....	....	1	10	6	60	16	160	17	85	40	600	77	462	31	310	3	36	159	1272	8
9	Champlain and St. Maurice Counties	..	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	.....	.....	.....	9
10	Maskinongé and Berthier Counties	....	....	....	....	..	....	.....	.....	.....	....	....	.....	....	....	....	....	....	....	....	....	10
11	L'Assomption and Terrebonne Counties	....	....	....	....	....	....	.....	.....	.....	....	....	.....	....	....	.....	....	.....	.....	.....	.....	11
12	Laval and Lake of the Two Mountains Counties	..	....	....	....	....	....	.....	....	.....	....	....	.....	....	.....	....	....	....	....	.....	.....	12
13	Hochelaga and Jacques Cartier Counties	....	....	....	....	....	....	.....	.....	.....	....	....	.....	....	.....	....	....	....	....	.....	.....	13
14	Vaudreuil County	....	....	....	....	14	424	503	4024	420	940	130	1040	37	222	410	2050	53	424	1091	4158	14
15	Bellechasse "	5	60	161	1610	1	10	95	950	6	60	367	2936	3710	37100	4	40	.....	.....	260	1820	15
		5	60	180	1980	21	494	760	6683	1143	5170	645	5544	4906	43643	1827	9582	158	1580	4876	30489	

* Cwt=100 lbs. † "Mixed Fish" includes greyling, bull-heads and ouananiche.

RECAPITULATION.

Of the Yield and Value of the Inland Fisheries, of the Province of Quebec, during the year 1915-16.

Kinds of Fish.		Quantity.	Value.
			$
Salmon	*Cwt.	69	1,374
Trout	"	85	890
Whitefish	"	257	2,930
Herring	"	1,655	2,315
Bass	"	207	2,322
Pickerel	"	927	8,468
Pike	"	1,960	10,156
Sturgeon	"	757	6,449
Eels	"	7,311	58,375
Perch	"	3,173	16,548
Maskinongé	"	285	3,001
Smelts	"	360	2,880
Shad	"	254	2,540
Goldeyes	"		
Mixed Fish	"	8,656	56,977
Caviare	"		
Total			175,225

*Cwt = 100 pounds.

RECAPITULATION.

Of the Number and Value of Vessels, Boats, Nets, Traps, etc., used in the Inland Fisheries of the Province of Quebec, during the year 1915-16.

	Number.	Value.
		$
Steam Vessels or Tugs (tonnage 202)	14	9,450
Boats (sail)	348	14,363
" (gasolene)	60	17,330
Gill-nets, Seines and other nets	530	4,270
Weirs	184	67,200
Lines	169	328
Freezers and Ice-houses	44	8,115
Smoke and Fish-houses	6	1,000
Piers and Wharves (private)	.....	
Total	.....	122,056

Number of men employed in Vessels or Tugs	64
" " Boats	136
" persons employed in Fish-houses, Freezers, etc	1,444
	1,644

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the Whole Province of Quebec, during the Year 1915-16.

Kinds of Fish.	Sea Fisheries.				Inland Fisheries.		Total, both Fisheries.		Total Marketed Value.
	Caught and Landed.		Marketed		Marketed.		Marketed.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
		$		$		$		$	$
Salmon cwt.	11,726	69,346							
" used fresh "			8,304	76,197	69	1,374	8,465	77,571	
" canned case			337	2,696			337	2,696	
" salted cwt.			2,031	12,186			2,031	12,186	
									92,453
Lobsters "	23,588	103,518							
" canned case			11,752	147,707			11,752	147,707	
" shipp. in shell cwt.			84	323			84	323	
									148,030
Cod "	732,481	1,033,607							
" used fresh "			3,959	5,938			3,959	5,938	
" green salted "			62,260	175,229			62,260	175,229	
" dried "			201,334	1,096,705			201,334	1,096,705	
									1,277,872
Haddock "	4,840	4,750							
" used fresh "			400	400			400	400	
" dried "			1,480	5,845			1,480	5,845	
									6,245
Hake and cusk "	600	480							
" " used fresh "									
" " dried "			200	700			200		
									700
Herring "	139,703	64,227							
" used fresh "			2,593	2,020	1,655	2,315	4,248	4,335	
" smoked "			1,209	1,218			1,209	1,218	
" pickled brl.			9,286	27,534			9,286	27,530	
" used as bait "			15,600	50,058			45,600	50,058	
" " fertilizer "			7,817	2,408			7,817	2,408	
									85,553
Mackerel cwt.	42,080	105,808							
" used fresh "			281	1,105			281	1,105	
" salted brl.			13,935	125,206			13,935	125,206	
									126,311
Shad, used fresh cwt.					254	2,540	254		
									2,540
Sardines brl.	68	544							
" sold fresh or salted "			68	680			68		680
Halibut, used fresh cwt.	390	1,950	390	2,340			390		2,340
Smelts "	2,571	5,604	2,571	7,065	360	2,880	2,931		9,945
Trout "	444	2,220	444	2,220	85	890	529		3,110
Sturgeon "	30	300	30	300	757	6,449	787		6,749
Bass "					207	2,322	207		2,322
Eels "	35	245	35	245	7,311	58,375	7,346		58,620
Tom-cod "	178	225	178	366			178		366
Whitefish "					257	2,930	257		2,930
Pickerel "					927	8,468	927		8,468
Perch "					3,173	16,548	3,173		16,548
Pike "					1,960	10,156	1,960		10,156
Maskinongé "					285	3,001	285		3,001

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., state, for the Whole Province of Quebec, during the year 1915-16.

Kinds of Fish.	Sea Fisheries.				Inland Fisheries.		Total, both Fisheries.		Total Marketed Value.
	Caught and Landed.		Marketed.		Marketed.		Marketed.		
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	
		$		$		$		$	$
Flounders..... "	2	2	2	4	.....	.....	2	.....	4
Mixed fish..... "	38	76	38	114	8,656	56,977	8,694	.....	57,091
Squid..... brl.	999	1,823	999	1,823	.....	.....	999	.....	1,823
Clams..... "	2,295	4,000	.....	.....	.....	.....	.....	.....	
" used fresh..... "	.....	.....	2,293	4,586	.....	.....	2,293	4,586	
" canned..... case	.....	.....	2	12	.....	.....	2	12	4,598
Capelin..... brl.	2,187	944	2,187	1,827	.....	.....	2,187	.....	1,827
Tongues and Sounds... cwt.	.....	.....	139	380	.....	.....	139	.....	380
Hair Seals..... No.	8,466	8,466	.....	.....	.....	.....	.....	.....	.....
Hair Seal Skins..... "	.....	.....	8,466	13,182	.....	.....	8,466	.....	13,182
Whales..... "	84	58,800	.....	.....	.....	.....	.....	.....	.....
Whalebone and Meal..tons.	.....	.....	10	900	.....	.....	10	.....	900
Fertilizer..... cwt.	.....	.....	3,617	12,659	.....	.....	3,617	.....	12,659
Whale Oil..... gals.	.....	.....	171,000	49,590	.....	.....	171,000	.....	49,590
Fish Oil..... "	.....	.....	167,344	50,861	.....	.....	167,344	.....	50,861
Belugas..... No.	750	1,500	.....	.....	.....	.....	.....	.....	.....
Beluga Skins..... "	.....	.....	750	3,750	.....	.....	750	.....	3,750
Seal Oil..... gals.	.....	.....	35,459	15,247	.....	.....	35,459	.....	15,247
Totals.....	.....	1,468,435	.....	1,901,626	.....	175,225	.....	.....	2,076,851

RECAPITULATION.

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in the Province of Quebec for the year 1915-16.

	Sea Fisheries.		Inland Fisheries.		Total, both Fisheries.	
	Number.	Value.	Number.	Value.	Number.	Value.
		$		$		$
Steam Fishing Vessels, (tonnage 1034)	16	115,200	14	9,450	30	124,650
Sailing and Gasolene Vessels	31	25,400			31	25,400
Boats (sail)	3,524	240,238	348	14,363	3,872	254,601
" (gasolene)	488	124,135	60	17,330	548	141,465
Carrying Smacks	29	16,325			29	16,325
Gill-Nets, Seines, Trap & Smelt Nets, etc.	18,657	211,195	530	4,270	19,187	215,465
Weirs	48	4,150	184	67,200	232	71,350
Trawls	1,385	17,953			1,385	17,953
Hand Lines	19,136	12,523	169	328	19,305	12,851
Lobster Traps	82,185	81,295			82,185	81,295
" Canneries	73	58,390			73	58,390
Salmon Canneries	5	625			5	625
Freezers and Ice-houses	219	50,375	44	8,115	263	58,490
Smoke and Fish-houses	1,901	319,275	6	1,000	1,907	320,275
Fishing Piers and Wharves	211	65,238			211	65,238
Totals		1,342,317		122,056		1,464,373

	Sea Fisheries.	Inland Fisheries.	Both Fisheries.
Number of men employed on Vessels	309	64	373
" " Boats	8,273	136	8,409
" " Carrying Smacks	69		69
" persons employed in Fish-houses, Freezers, Canneries, etc.	3,502	1,444	4,946
Totals	12,153	1,644	13,797

APPENDIX 5.

ONTARIO.

N. B.—The fisheries of Ontario are administered by the Provincial Government.

RETURN of the Number of Fishermen, Tonnage and Value of Tugs, Vessels and ployed in the Fishing Industry in the

Number	District.	Fishing											
		Tugs.				Gasoline Launches.			Sail or Row Boats.			Gill Nets.	
		Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Number.	Value.	Men.	Yards.	Value.
				$			$			$			$
1	Kenora and Rainy River Districts	4	90	6650	4	67	21405	131	67	2656	112	139400	14061
2	Lake Superior	20	317	56850	118	17	7650	41	104	7310	169	916310	51935
3	Lake Huron (North Channel)	20	391	71400	91	43	18955	97	79	3765	109	1022700	69119
4	Georgian Bay	12	306	48500	53	66	27385	140	93	8386	151	924175	52357
5	Lake Huron (proper)	12	183	28500	47	35	14165	70	75	6818	130	468471	33593
6	Lake St. Clair, etc	....	.....	. ..	...	55	16500	98	120	4492	197	....	.....
7	Lake Erie	50	1431	310750	275	166	82460	449	186	10505	293	1526642	141203
8	Lake Ontario	....	.....	. ...	....	157	44470	307	434	14053	657	887685	49420
9	Inland waters	....	. ..	....	...	69	17600	66	245	5981	309	9960	1068
	Totals	118	2718	522650	588	666	250990	1399	1403	64566	2127	5895343	412756

Boats, the Quantity and Value of all Fishing Material and other Fixtures Employed in the Province of Ontario, during the year 1915-16.

Material.													Other Fixtures used in Fishing.				
Seines.			Pound Nets.		Hoop Nets.		Dip or Roll Nets.		Night Lines.		Spears.		Freezers and Ice Houses.		Piers and Wharves.		
Number.	Yards.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	No. Hooks.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.
		$		$		$		$		$		$		$		$	
... ..	.....	.	45	13650	6	260	....	....	... .	.....	.. .	....	37	11430	21	2945	1
... .	.....	.....	57	17175	....	.....	....	....	.....	.....	...	.....	26	7475	30	4180	2
.. ..	....	....	130	52000	1	20	...	...	3900	150	....	.....	44	14050	31	15300	3
1	100	90	9	3050	25	483	.....	...	28600	2500	.. .	.....	22	5685	23	2900	4
6	370	430	64	18300	..	.....	9	31	5200	215	....	.....	42	4755	6	1275	5
70	12301	4524	10	2600	169	9080	6	128	3300	738	....	.. ..	34	9895	11	1683	6
65	21005	8030	607	255650	....	.....	11	71	9235	131	...	.. ..	123	80960	56	25150	7
19	1163	506	.....	.....	566	11015	.....	.....	28400	813	224	336	276	7065	11	955	8
14	555	536	3	375	239	7544	8	17	20235	418	195	751	62	2000	6	450	9
175	35494	14116	925	362800	1006	28402	34	247	98870	4965	419	1087	666	143315	195	54838	

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught, and Marketed, or consumed locally, for the Province of Ontario, during the year 1915-16.

Number.	Fishing Districts.	Herring, fresh, *cwt.	Herring, salted, brl.	Herring, smoked, cwt.	Trout, fresh, cwt.	Trout, salted, brl.	Whitefish, fresh, cwt.	Whitefish, salted, brl.	Pickerel, cwt.	Blue Pickerel, cwt.	Pike, cwt.	Sturgeon, cwt.	Eels, cwt.	Perch, cwt.	Sturgeon Bladders, number.	Tullibee, cwt.	Catfish, cwt.	Carp, cwt.	†Mixed fish, cwt.	Caviare, cwt.	Number.
1	Kenora and Rainy River Districts				928		13196		11637		12219	856	596	80	121	2621	1186	1903	815	17	1
2	Lake Superior	2769	2234		16453	9896	8420	690	1800		709	161		3		89		14	1571	0 16	2
3	Lake Huron (north channel)	394	138		17252	179	6565	103	3326		1018	275		162	248	521	14		1255	4 27	3
4	Georgian Bay	991	461		13883	3662	3924	1330	851		784	61		110		430	87	156	455	9 05	4
5	Lake Huron proper	2219	405		7876	987	519	25	1680		2	126		1617	13	2699		110	808	9 82	5
6	Lake St. Clair, etc.						457	200	374		546	341		1126			663	6636	3836	10 67	6
7	Lake Erie	55737			21		18322		6077	48823	6305	563		10421	1219	211	384	9049	9486	28 61	7
8	Lake Ontario	17064	96	758	5508	23	8096	40	860		3670	15	2197	1193			2677	1125	4387		8
9	Inland waters	23			338		157		110		591	116	333	192	3	56	1664	1188	4450	0 22	9
	Totals	104197	3334	758	62262	14747	59936	2388	26718	48823	25841	2511	3126	14904	1604	6630	6675	20181	50063	79¾	
	Rates	5	10	10	10	10	10	10	10	10	8	15	6	5	60c	6	8	2	5	100	
	Values	520985	33340	7580	622620	147470	599360	23880	267180	488230	206752	37710	18756	74520	962	39780	53400	40362	250315	7980	

* Cwt. = 100 lbs.

RECAPITULATION

Of the Yield and Value of the Fisheries in the Province of Ontario, during the year 1915-16.

Kinds of Fish.		Quantity.	Value.
			$
Trout	*Cwt	106,503	770,090
Whitefish	"	67,100	623,240
Herring	"	115,715	561,965
Pickerel	"	26,718	267,180
Blue Pickerel	"	48,823	488,230
Pike	"	25,844	206,752
Sturgeon	"	2,514	37,710
Eels	"	3,126	18,756
Perch	"	14,904	74,520
Sturgeon bladders	Number.	1,604	962
Tullibee	Cwts.	6,630	39,780
Cat-fish	"	6,675	53,100
Carp	"	20,181	40,362
Mixed fish	"	30,063	150,315
Caviare	"	79⅜	7,980
Total			3,341,182

*Cwt. 100 lb.

RECAPITULATION.

Of the Number and Value of Vessels, Boats, Nets, Traps, etc., used in the Fisheries in the Province of Ontario, during the year 1915-16.

—	Number.	Value.
		$
Steam vessels or tugs, (tonnage 2,718)	118	522,650
Boats (sail)	1,403	64,566
" (gasolene)	666	259,990
Gill nets, seines and other nets		818,321
Spears	419	1,087
Lines	98,870	4,965
Freezers and ice-houses	666	143,315
Piers and wharves (private)	195	54,838
Total		1,860,732

Number of men employed in vessels or tugs	588
" " boats	3,526
	4,114

APPENDIX 6.

MANITOBA.

REPORT ON THE FISHERIES OF DISTRICT No. 1.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit my fifth annual report on the fisheries for District No. 1, Manitoba, for the fiscal year ending March 31, 1916, together with the statistics showing the quantities taken, and prices.

I am pleased to report that the summer catch of whitefish in lake Winnipeg was good, and all the companies were through and had their amounts before the close of the season; they fished only about two months, finding the fish very plentiful, and also of a large size. At each station I weighed one hundred fish and found they would average three pounds each. This is the first year that I have heard the fishermen express themselves that the size and quantity of fish were better on account of the great number of young whitefish fry put into the lake each year, from the three hatcheries. The number of young whitefish hatched out and put into lake Winnipeg was 125,000,000; also a large number of pickerel were distributed in lakes in southern Manitoba, that were hatched out from the Gull Harbour hatchery on lake Winnipeg.

You will see by the annual returns that a larger amount of whitefish were caught in the summer of 1915-16 than in that of 1914-15. Very few men were fishing in the winter for whitefish, which accounts for the small quantity caught. You will note that tullibee caught are in excess of last year, and also that more gear was used in the present year. The price of fish was the same as last year, and the companies have all sold out. No fish were held over in freezers.

There was very little fall fishing done in my district. On account of so many pickerel being held over in cold storage, none of the large companies handled any last fall.

The northern lakes in my district were fished this season, namely, Setting, Landing, and Partridge Crop lakes. The fishermen report good fishing and the fish were of a good size, but on account of the very deep snow they were unable to get all their fish out to the railway, and had to leave about one hundred boxes, which were given to the Indians.

I have in my district one overseer, Mr. D. S. Daly, who helps in the office when I am out on the lake on inspection trips. His district is from Selkirk to the Narrows. I also have two guardians, B. Thordarson and C. R. Macfie who go all over lake Winnipeg in the winter; and two at the St. Andrews locks. I find more trouble at this place than at any other place in my district, as the fish gather in great quantities at the foot of the dam, where people try to scoop them; and I have to watch them at night especially. On one occasion last spring I took the crew of the *C. G. S. Bradbury* with the two guardians and we watched at the locks until two o'clock in the morning, and caught two men with 500 pounds of fish. They were fined $100 each, and this put a stop to illegal fishing for a while, but I find that it is from here that most of the complaints come, as it is so near the Winnipeg market, and the fish are so plentiful that it is nearly impossible to keep people from fishing during the close season.

I am, sir,
Your obedient servant,
J. A. HOWELL,
Inspector of Fisheries.

REPORT ON THE FISHERIES OF DISTRICT No. 2.

To the Superintendent of Fisheries,
Ottawa, Ont.

SIR,—I have the honour to submit my annual fisheries report for District No. 2, western Manitoba, for the fiscal year ending March 31, 1916, together with the statistical returns for the district.

There has been only one prosecution in my district during the year, and that was for a fisherman catching whitefish during the spawning season, and holding the fish alive in wire-netted crates until such time as they could be frozen and marketed. This method of illegal fishing is very hard to prevent, as it is carried on in very sparsely settled portions of the lakes.

I have had to assist me during the year two overseers and five guardians, together with two special guardians for shorter periods.

To explain the large decrease in this year's catch of fish in my district, the following comparison of the four principal varieties is shown:—

1914-15.		1915-16.	
Licenses issued, 779.		Licenses issued, 551.	
	Lbs.		Lbs.
Trout	74,200	Trout	43,600
Whitefish	2,387,500	Whitefish	1,654,700
Pickerel	2,967,200	Pickerel	1,260,900
Pike	3,270,000	Pike	2,707,500
Total	8,698,900	Total	5,666,700

I might also state that the gross quantities of all kinds of fish caught in my district during the fiscal years:—

1914-15 amounted to 11,550,000 pounds.
1915-16 " " 7,534,000 "

Decrease 4,016,000 "

From the statistical returns you will see that the decrease is owing to a smaller number of nets being used; and other causes. I will endeavour to give you my opinion as to the principal reasons for this:

1. During the year 1914-15 the dealers and buyers of fish fitted out the fishermen with nets and supplies, which they did not do during the year 1915-16.

2. As you will perceive, the number of licenses issued must be taken into account; they show a decrease of 228 for the year 1915-16 compared with the year 1914-15.

3. During the year a large number of fishermen enlisted; I am credibly informed that in one village thirty-seven men enlisted, and of that number thirty-five were fishermen.

4. The past winter has been a very severe one on the fishermen all over this province; having been very cold with an unusually large quantity of snow, making fishing difficult, also making it very hard for teamsters to freight the fish to the different railroad centres.

5. The low water in all our lakes and rivers has been the cause of poor fishing in many localities, and has caused the fishermen a lot of trouble moving their nets to find the locations of the fish.

I consider the great amount of snow we have had the past winter will have a very beneficial effect on our waters for the future and look to the coming year's fishing to be far ahead of that for the year just closed.

I have found in certain sections of my district that the fishermen catch, and the dealers purchase, quantities of small, undersized whitefish; they are generally classed as No. 2 and about half market price is paid for them. It is impossible for the officers to prevent the catching of these small fish under present conditions, and I would strongly recommend that the department adopt a size-limit for all whitefish in this province.

I have pleasure in appending hereto the annual reports of Overseer Stevenson for The Pas district, and Overseer White for the Winnepegosis district.

We were all very much pleased to have the pleasure of a short personal visit from you the past summer, and I trust that your health will permit of a much longer visit the coming summer. The visits of the superintendents of the different departments personally to see and confer with the different officers must have a beneficial effect.

I herewith attach a summary of all commercial licenses issued from this office during the fiscal year 1915-16:—

	Number of Licences	
	1914-15.	1915-16.
Summer—		
Sail boats	19	16
Skiffs	82	13
Sturgeon	..	14
	101	43
Winter—		
Pickerel	431	357
Whitefish	221	135
Jackfish	26	16
	678	508

I am sorry to report that only sixty-nine settlers in my district took advantage of the right of applying for settlers' permits, although issued free of any charge. I can account for the neglect only in that the majority of the settlers are not acquainted with the fisheries regulations.

The department opened during the year for winter fishing three small lakes, namely, Athapapaskow, Egg, and Goose lakes. The only one fished during the winter, however, was Egg lake, the smallest of the three, and the men that fished it had good catches and are well satisfied.

Reed lake was not fished during the winter. From the previous winter's experience it was found that there were no whitefish in the lake. Dog lake, on account of low water, was not commercially fished this year.

Sturgeon fishing was permitted in Cumberland and Sturgeon (Namew) lakes the past summer, but on account of the overflow of the Saskatchewan river very little fishing could be done, all the low land being covered with water so that fishing conditions were changed. Several fishermen after taking out and paying for licenses did not attempt to do any fishing.

A very peculiar state of affairs existed in this district during last summer. The Winnipegosis territory was suffering from low water in the lakes and rivers at the same time that the Pas territory was overrun with water, while the Saskatchewan river overflowed, and for miles all the low land was flooded.

I cannot close my report without thanking all the officials of the department at Ottawa for the prompt and friendly manner in which any information or requisitions have been supplied.

I must compliment all the officers in my district who this year filled their several positions satisfactorily, and at all times when required acted promptly; and also all the officers of District No. 1, with which district we are closely allied.

I am, sir,

Your obedient servant,

D. F. REID,
Inspector of Fisheries.

REPORT ON THE FISHERIES OF THE PAS DISTRICT.

Mr. D. F Reid,
Inspector of Fisheries,
Winnipeg.

Sir,—I herewith submit to you my annual report for the year ending March 31, 1916.

Sturgeon fishing was opened up for the summer in Sturgeon and Cumberland lakes after having been closed for several years. Fourteen licenses were issued for summer fishing, but only eight men fished, as there was a very poor market owing to the buyers not having prepared to handle the fish. Sturgeon fishing was not as good as before the lakes were closed, owing to high water, the whole country being flooded for the greater part of the summer. The average weight of sturgeon dressed was 20 pounds, or about the same as before the lakes were closed.

Regarding winter commercial fishing for scale fish, the catch was not as good as last season. Very poor prices were offered in the fall, and very little money was invested by the fishermen in new nets, most of them preferring to go out with cheap outfits. However, the price went up about Christmas and most of the fishermen pulled out very well. A very stormy winter also made some difference in the catch, as many of the men quit fishing early in January.

There was no commercial fishing in Cedar lake. Most of the fishing in Moose lake was in the shallow water in the north end, as it is near the railroad and freight was cheap. Many of the men were fishing nets six and eight-mesh deep and consequently had very poor fishing. The fish in this lake are keeping their size; white fish still average three pounds; and the fishing out in deep water was as good as it ever was. There was no one fishing at Reed lake this season. Fifteen licenses were issued for Wekuska lake, and though no one had a very heavy catch, all did fairly well, and I believe with good outfits would have caught more than last season. The whitefish in this lake seem to die very quickly in the nets; the fishermen pull their nets every two days, but still get many dead fish.

Very little fishing was done at Beaver lake this season. As it cost one and a half cents to haul to town and the buyers only offered three and a half here last fall, no one engaged in fishing to a great extent. The fish are very good and are keeping up well in size. Trout average a little over seven pounds, and whitefish three pounds. At Sturgeon lake only three men were fishing, and they caught more per license than last season.

There were four new lakes opened for fishing in this district this season, but as it was too late when they were opened, to allow the fishermen to get in by open water,

only one was fished. Egg lake, the nearest to The Pas, is a small lake about 6 miles long by 4 miles wide. Six licenses were issued and they made a splendid catch of whitefish of a good quality. A few pike were caught, also tullibee and suckers. There are no trout in this lake, and very few pickerel.

I believe the other new lakes will be fished next season. They are Athapapaskow, Goose, and Running lakes. They are all well stocked with whitefish and trout.

There are a large number of good whitefish lakes in this district that are not on the map. I believe that in a block two hundred miles square north of The Pas, there is much more water than land.

I have had no convictions for violating the fishery regulations this year. The law has been well kept, and although there is a lot of snow around the fishing holes on the lakes, I believe the refuse has been well cleaned off the ice, as I have the fishermen educated to clean up every night as much as possible.

I am, sir,
Your obedient servant,

E. H. STEVENSON,
Fishery Overseer.

REPORT ON THE FISHERIES OF THE WINNIPEGOSIS DISTRICT.

Mr. D. F Reid,
Inspector of Fisheries,
Winnipeg.

Sir,—I am submitting to you an annual report for the year ending March 31, 1916.

In my district the catch of fish has dropped over one million pounds compared with last year's catch; but last year I issued 302 licenses, while this year I issued only 204. I do not think that the drop in weight means that the lake is being depleted in any way; I should say it is owing to the reduction in licenses; also the lowering of the lake may have something to do with it, and the fish may have changed their feeding grounds. The lake has lowered over four feet in the last two years.

In Red Deer lake, last year, a great many fish died in the winter; and when the ice broke up in the spring they washed ashore. The lake is very shallow, the deepest water being seven feet. As it was a very cold winter with very little snow, the water must have frozen to the bottom in several places, causing the fish to die; and when the ice melted in the spring they came ashore. The people living around the lake said they were principally pickerel and mullets.

On lake Dauphin the water lowered a couple of feet during the last year and the fishermen had to quit early in the season. On account of their nets freezing in, they were nearly all pulling out the nets when I visited them in January.

On lake Waterhen the fishing was very poor the first part of the year, but after the early part of January the fishing began to pick up and it kept getting better until the end of the season.

On the northwest part of lake Manitoba the fishing has not been very good this winter.

On the inspection trips that I made over my district I found everything in good shape, and the fishermen keeping the ice clean of cull fish and offal.

I hope that my reports are satisfactory to you.

I am, sir,
Your obedient servant,

C. L. WHITE,
Fishery Overseer.

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and value of all Fishing Gear and other Material, used in the Fishing Industry in District No. 1, Province of Manitoba, during the year 1915-16.

Number.	Fishing Districts.	Steam Vessels or Tugs.				Boats.			Gill-Nets.		Lines.		Freezers and Ice-houses.		Smoke and Fish-houses.		Piers and Wharves.		Persons employed in Freezers, Fishers, Fish-houses, etc.	Number.
		Number.	Tons.	Value.	Men.	Skiffs and Sail Boats.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
				$			$			$		$		$		$		$		
1	Lake Winnipeg	8	1026	127000	89	89	23000	237	1526	16786			53	57000	50	2500	12	9000	225	1
2	Red River					50	250	50	50	250	40	80								2
3	Winnipeg River					155	775	155	225	1350										3
4	Lac du Bonnet					25	125	25	25	150										4
5	Point du Bois					5	25	5	5	30										5
6	Setting Lake (winter)							10	160	1600										6
7	Falcon Lake (winter)							2	30	300										7
8	Landing Lake (winter)							10	160	160										8
9	Partridge Crop Lake (winter)							1	16	160										9
	Totals	8	1026	127000	89	324	24175	495	2197	22226	40	80	53	57000	50	2500	12	9000	225	

RETURN showing the Quantities and Values of Fish caught and Marketed or consumed locally, for District No. 1, Province of Manitoba, during the year 1915-16.

Number.	Fishing Districts.	White-fish, *cwt.	White-fish, value.	Bass, cwt.	Bass, value.	Pickerel, cwt.	Pickerel, value.	Pike, cwt.	Pike, value.	Perch, cwt.	Perch, value.	Tullibee, cwt.	Tullibee, value.	Cat-fish, cwt.	Cat-fish, value.	Goldeyes, cwt.	Goldeyes, value.	†Mixed fish, cwt.	Mixed fish, value.	Number.
			$		$		$		$		$		$		$		$		$	
1	Lake Winnipeg (summer)	25070	162955	....	....	185	925	518	1554	..	...	.....	.....	...	.....	.....	.....	1000	8000	1
	" (winter)	13 3	8989	...	...	10170	50850	2085	6255	.....	...	45411	113527	...	.....	3641	7282	3500	7000	
2	Red River (summer)	.....	.....	8	24	.....	.....	.....	.....	...	...	...	...	1386	7523	...	.....	2000	4000	2
	" (winter)	.....	.....	....	....	.....	.....	.....	.....	407	2035	.....	.....	...	...	.....	.....	1500	3000	
3	Winnipeg River (summer)	.....	...	...	...	.....	.....	.. ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	750	15000	3
	" (winter	.....	...	....	....	.....	.....	.....	.....	.. ..	...	.....	.....	..	....	.....	.....			
4	Lac Du Bonnet (summer	.....	...	....	....	.....	.....	.....	.....	...	...	.....	.....	...	.....	.....	.....	700	14000	4
	" (winter	.....	...	....	....	.....	.....	..	.....	.....	.....	.....	.....	...	.....	.....	.....			
5	Point du Bois (summer)	.....	...	...	.....	.....	.....	.....	.....	...	...	.....	.....	...	.....	.....	.....	7500	15000	5
	" (winter)	.....	...	...	.....	.....	.....	.....	.....	...	...	.....	.....	...	.....	.....	.....			
6	Setting Lake (winter)	450	2925	....	....	100	500	250	750	...	...	.....	.....	...	.....	...	.....	3500	7000	6
7	Landing Lake (winter	500	3250	....	....	70	350	300	900	...	...	273	682	....	.....	...	.....	2500	5000	7
8	Falcon Lake (winter	400	2600	.....	.....	.....	.....	..	.....	...	...	.....	.....	.....	.....	.....	....	100	200	8
9	Partridge Crop Lake	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	9
	" (winter)	10	65	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	100	200	
10	Nelson River District (Indians)	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	..	18000	36000	10
	Totals	27813	180784	8	24	10525	52625	3153	9459	407	2035	15684	114209	1386	7523	3641	7282	57200	114400	

* Cwt. = 100 lbs.

† Mixed fish includes greyling, bull-head and ouananiche.

RETURN showing the number of Fishermen, etc., the number and value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other material, used in the Fishing Industry in District No. 2, Province of Manitoba, during the year 1915.16.

Number.	Fishing Districts.	Steam Vessels or Tugs.				Boats.					Gill-nets		Freezers and Ice-houses.		Fish-houses.		Piers and Wharves.		Number of Persons employed in Freezers, Fish-houses.	Number.
		Number.	Tons.	Value.	Men.	Sail and Skiffs.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	Summer.			$			$		$			$		$		$		$		
1	Lake Winnipegosis	2	80	14000	16	29	3460	1	800	48	675	6750	2	2000	14	4600	4	2050	65	1
2	" Cumberland and Sturgeon					8	400	1	500	12	24	294			2	100			2	2
	Winter.																			
3	Lake Winnipegosis									138	2070	20700								3
4	" Manitoba									226	1808	12864								4
5	" Water Hen									22	330	3300								5
6	" Dauphin									16	240	2400								6
7	" Red Deer									10	150	1500								7
8	" St. Martin									37	40	200								8
9	" Moose									20	270	3240								9
10	" Wekuska									15	220	2640								10
11	" Egg									6	60	720								11
12	" Sturgeon (Sask.)									3	45	540								12
13	" Beaver "									12	180	2160								13
14	The Pas												1	5000	3	4000			12	14
	Totals	2	80	14000	16	37	3860	2	1300	565	6112	57308	3	7000	19	8700	4	2050	79	

RETURN showing the Quantities and Values of all Fish caught and Marketed or consumed locally, for District No. 2, Province of Manitoba, during the year 1915-16.

Number.	Fishing Districts.	Trout, cwt.*	Trout, value.	Whitefish, cwt.	Whitefish, value.	Pickerel, cwt.	Pickerel, value.	Pike, cwt.	Pike, value.	Sturgeon, cwt.	Sturgeon, value.	Mullets, cwt.	Mullets, value.	Perch, cwt.	Perch, value.	Tullibee, cwt.	Tullibee, value.	Goldeyes, cwt.	Goldeyes, value.	Mixed Fish, cwt.	Mixed Fish, value.	Number.
	Summer.		$		$		$		$		$		$		$		$		$		$	
1	Lake Winnipegosis	...	....	780	3900	1379	6895	609	1827	....	.....	146	146	.....	....	.....	....	...	...	448	896	1
2	" Cumberland and Sturgeon	....	...	....	..	.....	.....	.....	.....	153	918	.....	.....	.....	..	.....	...	..	....	...	...	2
	Winter.																					
3	Lake Winnipegosis	.....	....	4980	24900	2940	14700	11726	35178	.....	.....	4206	4206	...	.....	188	564	23	46	2322	4644	3
4	" Manitoba	...	...	2238	11190	4510	22550	12880	38640	.....	.....	1450	1450	126	630	952	2856	...	...	3006	6000	4
5	" Water Hen	.....	....	1470	7350	1566	7830	742	2226	....	.....	608	608	4	20	572	1716	100	200	355	710	5
6	" Dauphin	.....	....	..	.....	549	2745	261	783	...	.....	16	16	.....	.....	.....	.....	177	354	180	360	6
7	" Red Deer	...	.....	169	845	648	3240	237	711	.....	.....	173	173	.....	.....	.....	.....	.....	.....	90	180	7
8	" St. Martin	.....	.....	383	1915	320	1600	35	165	.....	.....	74	74	36	180	149	447	.....	.....	1317	2634	8
9	" Moose	50	200	1937	7748	411	1644	142	284	.....	.....	.....	.....	.....	....	...	.....	....	....	1046	2092	9
10	" Wekuska	.....	...	1964	7856	130	520	397	794	.....	.....	.....	.....	.....	....	...	.....	.....	.....	226	452	10
11	" Egg	.....	...	1230	4920	.....	.....	26	52	.....	.....	.....	.....	.....	....	...	.....	....	.....	4	8	11
12	" Sturgeon (Sask.)	98	392	290	1160	....	.....	20	40	.....	.....	....	.....	.....	.....	...	.....	.....	...	150	300	12
13	" Beaver "	288	1152	1106	4424	156	624	.....	.....	.....	.....	.....	.....	.....	.....	17	34	.....	.....	365	730	13
	Totals	436	1744	16547	76208	12609	62348	27075	80640	153	918	6673	6673	166	830	1878	5617	300	600	9503	19006	

RECAPITULATION

Of the Yield and Value of the Fisheries in the Province of Manitoba, during the year 1915-1916.

Kinds of Fish.		Quantity.	Value.
			$
Trout	*Cwt.	426	1,744
Whitefish	"	44,360	256,992
Bass	"	8	24
Pickerel	"	23,134	114,973
Pike	"	30,228	90,099
Sturgeon	"	153	918
Mullets	"	6,673	6,673
Perch	"	573	2,865
Tullibee	"	47,562	119,826
Cat-fish	"	1,3 6	7,523
Goldeyes	"	3,941	7,882
Mixed fish	"	66,703	133,406
Total			742,925

*Cwt.=100 lb.

RECAPITULATION

Of the Number and Value of Vessels, Boats, Nets, Traps, etc., used in the Fisheries in the Province of Manitoba, during the year 1915-1916.

——	Number.	Value.
		$
Steam vessels or tugs (tonnage 1,106)	10	141,000
Boats (sail)	361	28,035
" (gasolene)	2	1,300
Gill-nets, seines and other nets	8,309	79,534
Freezers and ice-houses	56	127,000
Smoke and fish-houses	69	11,200
Piers and wharves (private)	16	11,050
Total value		399,119

Number of men employed in vessels or tugs	105
" " boats	1,060
" persons employed in fish-houses, freezers, etc	304
	1,469

APPENDIX 7.

SASKATCHEWAN AND ALBERTA.

REPORT ON THE FISHERIES OF THE PROVINCES BY THE CHIEF INSPECTOR, INDIAN HEAD, SASK.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit my second annual report on the fisheries of the provinces of Saskatchewan and Alberta for the fiscal year of 1915-16. Also, returns of the catch, showing disposition of same, and an estimate of the capital employed in the prosecution of these fisheries, together with the number of people engaged therein.

These figures show, in capital employed, an aggregate value of $72,040, which is $7,499 more than last year, the difference being chiefly made up by the increased number of motor-boats placed on the lakes, and, to some extent, by the increase in the price of nets.

The aggregate value of fish taken for this year is $218,737, as against $229,427, a falling-off of $10,690. This decrease is caused by various things, the principal of which are the heavy crops of 1915, commanding all available labour, the severe winter of 1915-16, and the large number of men, who were previously engaged in the fishing industry, enlisting for overseas service.

Twelve months ago, when making our first annual report, we felt the effect of the worldwide struggle being waged in Europe. We were then sanguine in our hope that peace—that peace we all pray for—would soon be restored; but fate decreed otherwise, and the strife has been brought closer to us all. A number of our most faithful officers are now doing duty in the trenches; some have been wounded, others are still on the firing line. Their duty to their country is generously exemplified by the number who have answered the King's call and have contributed their share towards bearing the burden falling in no light measure upon the people of the British Empire. May it be our pleasure to welcome them back ere the end of the present year.

It is pleasing, however, to reflect on the conditions of affairs, especially in the province of Alberta, compared with those of a year ago; when the fisheries were about the only source of livelihood to many of the settlers. Think of the condition of those people to-day. Many of them have a handsome cash balance in the bank, abundant crops and good prices for farm products. Policies of retrenchment have placed the great majority of them in an enviable position, thanks to the competent administration of the fisheries in the past, which afforded that necessary relief—in fact, was the chief factor in carrying them through the lean year of 1914.

Southern Saskatchewan is directly under the control of this office. While we have but two important lakes within this territory, we have a large number of smaller lakes, which are stocked with pike, pickerel and suckers sufficient to supply the farmers with fresh fish during the summer season, and with the closed season strictly observed the supply should remain normal.

Notwithstanding the severe winter, the Qu'Appelle lakes and Long lake, have made a good showing.

The northern portion of this province is fully reported on by Inspector Macdonald, whose report is appended.

The following are the number of convictions made during the year: Saskatchewan, 53; Alberta, 38. This is an increase over last year, no doubt due to the able assistance rendered in the outlying districts by the Royal Northwest Mounted Police.

The reports of Acting Inspector Thompson, for Northern Alberta, and of Overseer N. J. Hoad, for Southern Alberta, are appended. They cover the ground fully, and will be found interesting.

I am, sir, your obedient servant,

G. S. DAVIDSON,
Chief Inspector of Fisheries.

REPORT ON THE FISHERIES OF NORTHERN SASKATCHEWAN.

G. S. Davidson, Esq.,
Chief Inspector of Fisheries,
Indian Head, Sask.

Sir,—I have the honour to submit my report on the fisheries of the northern portion of the province of Saskatchewan for the year ending March 31, 1916, together with statistical returns showing the yield and value of fish and the amount and value of equipment used.

The catches of the various kinds of fish are less than those for the previous year. This may be accounted for by the very low water in the lakes and rivers during the summer season and the unusually severe weather during the winter fishing season.

The following number of licenses, compared with the number for the previous year, were issued during the year:—

	1914-15.	1915-16.
Fishermen	420	336
Commercial	11	—
Domestic	93	130
Indian	—	394
Angling	15	11

The largest decrease in the number of fishermen's licenses was in the Ile à la Crosse district. This was caused by a number of men, who formerly made a living in this industry, turning their attention to hunting on account of the high price paid for furs by the trading companies.

There was a large decrease in the catch of whitefish in the Ile a la Crosse lakes, due to the lack of commercial fishermen. The increase in the catch of yellow fish, on the other hand, was quite noticeable owing to the large number of anglers obtaining permits. This was especially noticeable in the Jackfish, Round, Wakaw, and Sturgeon Lake districts, where a close watch has to be kept to prevent violations of the regulations.

Summer commercial fishing has not been carried on to any great extent in the northern part of the district owing to the lack of transportation facilities. It was tried at Turtle lake, but the fishermen found it unprofitable to ship the fish 35 miles to the nearest railroad and then to a market, so were compelled to abandon the project.

The market was good during the winter season, and as fish were not so plentiful the buyers were forced to pay higher prices in order to secure enough fish to fulfil their contracts. The fishermen were, therefore, better off than in the previous year, when the catch was larger.

The local markets have been well supplied during the season, as the small dealers have realized that the local trade is the most profitable and uniform, and have paid special attention to it. In the Battleford district, as in other districts, large quantities

were sold to the different grain growers associations for distribution among the different individual members, thus allowing the farmers to buy fish at wholesale price, with the additional advantage of lower freight rates.

The catches of the Cold Lake and Battleford districts, with the exception of three carloads shipped to Edmonton, were used locally. The catch of the Big River district was shipped to points in the southern part of the province, except some eight carloads shipped to the United States. The fish from the latter district were put up in boxes of 120 pounds, and about 15 per cent of those sent to the States were packed in a round condition.

While there were thirty-three fishermen's licenses issued for the Saskatchewan river, only sufficient fish were taken to supply the needs of the licensees. This river is almost depleted of its supply of fish, and needs restocking.

There were twenty-seven prosecutions during the year, as follows:—

Fishing without license	23
Obstructing streams	2
Using illegal nets	2

The fines imposed amounted to $123.50, with costs of $73.35.

Fishing without a license was done chiefly on the Saskatchewan river, and the prosecutions will doubtless have a good effect on the settlers in future.

The Indians were the chief offenders in obstructing and damming streams. This has been their method of taking fish in the past.

There has been a noticeable improvement in the quality and size of fish taken in my district during the past two years, the overseer at Jackfish lake stating that the fish in that region are 20 per cent larger than two years ago, notwithstanding the heavy fishing carried on.

In conclusion, I wish to emphasize the efficiency of the staff of fishery officers in my district, all of whom take a great interest in their work. Two of the officers have enlisted for overseas service during the year. In the death of Guardian Matthews, of Big River, the department lost a very efficient officer.

I am, sir, your obedient servant,

G. C. McDONALD,
Inspector of Fisheries.

REPORT ON THE FISHERIES OF NORTHERN ALBERTA.

G. S. DAVIDSON,
Chief Inspector of Fisheries,
Indian Head, Sask.

SIR,—I have the honour to submit my report on the fisheries of northern Alberta for the year ending March 31, 1916, together with statistical returns showing yield and value of fish, and amount and value of equipment used.

A comparison with the figures for the year 1914-15 shows, with the exception of Lesser Slave Lake district, a large falling-off both in the catch of fish and the number of fishermen. This may be attributed to two causes: first, the large number of men who previously followed the fishing industry enlisting for overseas service; second, the very severe cold prevailing from about the last week in December until the end of January, the thermometer registering from 35 degrees below zero to 60 degrees below in the northern districts, a period of practically five weeks, during which fishermen were unable to operate their nets to any extent. In the early part of the year the market was unsteady, and until the middle of July there was no great demand for fish. In many cases the fishermen did not do anything until they were assured of a regular

market. An improvement in the observation of the fishery regulations may be observed. A total of eighteen prosecutions were made, convictions being secured in each case. Details of conviction as follows:—

Fishing without license	12
Fishing during close season	3
Using fish traps	1
Using net of illegal mesh	1
Transferring license without proper authority	1

The fishery officers have been most vigilant in preventing illegal fishing. The members of the Royal Northwest Mounted Police have given every assistance, and have been a great help to the fishery officers.

During the year free permits were issued by the department to all Indians and Halfbreeds making application for same. Some slight difficulty was experienced at first by the officers in making it understood that these permits were necessary, but after having the conditions fully explained to them by the officers, the Indians caused no difficulty. The statements of these permits will in the future be most valuable in making up statistics. Heretofore the quantity of fish taken by the Indians and Halfbreeds was only to be arrived at by making an estimate. No hanging of fish was permitted during the year.

The demand for fish was very unsteady until the middle of July, and very little fishing was done except to supply the local demand. From the latter part of July the demand increased from month to month. Several firms in Edmonton, having secured markets in the United States and different points in Canada, sent buyers out, who took practically all the fish in sight. The district more particularly affected being Lesser Slave lake, Wabamun and Lac la Biche, the shipping facilities from those points being good.

At the opening of the winter season, with a good market in view and a steady demand for fish, the fishermen had no difficulty in disposing of their catch at fair prices, from 2 to 3 cents per pound. Their activities were, however, curtailed by the extreme cold, and the demand, especially throughout January and the first two weeks of February, exceeded the supply, some firms having difficulty in procuring enough fish to fulfil their contracts.

A large proportion of the catch was disposed of in local markets and within the province, fish being shipped to many small towns and sold to farmers, who were glad to be able to purchase them at a reasonable cost. The market in these smaller points is only a winter one, there being no facilities for handling fish during the summer.

The outside demand for Alberta fish has led to a great improvement in the method of handling them. In past years the fish were shipped in sacks, being roughly used in transportation, which damaged them, thereby not only reducing the price, but making it hard to find a market for them. This year the larger buyers are paying great attention to the handling of their fish, putting them up in boxes and placing them on the market in first-class condition. This will, no doubt, cause an increased demand for Alberta fish, especially whitefish.

There was a very large demand for jackfish, larger, in fact, than could be supplied, prices being practically the same as paid for whitefish.

At the present time the only districts in which fishing commercially to any extent is carried on, and upon which the market depends for its supply, are: Lesser Slave lake, Wabamun lake, Lac la Biche, and, to a lesser extent, Saddle lake. The latter, though a good fishing district, lies too far from a railroad at present to make shipping fish a profitable venture.

The fisheries of Alberta are becoming more important each year. New territory is being opened up by the railroads, shipping facilities improved, markets procured, and buyers entering the business, providing a steady market in which the fishermen can dispose of their catch.

Conditions in all the smaller districts have not changed during the year. Lakes previously restricted to angling are still under the same restrictions, there being no good reason why any change should be made at the present time.

In two lakes a slight depletion of fish life is reported. Calling lake, in the Athabasca district, and Shining Bank lake.

Calling lake, though only accessible during the winter, has been heavily fished in past years. The town of Athabaska and the nearby settlements are dependent on it for their supply of fish. Though the depletion is at present slight, it would be well to limit the number of fishermen's licenses to eight, which number is sufficient to take care of local needs. It is recommended that all settlers in the vicinity of the lake be allowed to take out domestic fishery licenses.

Shining Bank lake is a small body of water in a well-settled district, and though in the past two or three fishermen's licenses have been granted, that Edson and the small places in the district might be supplied with fish, I think that in future this lake should be restricted to domestic licenses alone, and that these should be limited to ten or twelve. This will enable those who depend on fish to help out their food supply to be supplied, and at the same time give the lake a chance to come back.

Wabamun lake is in good condition, fish showing an increase year by year. It is well supervised and there is no danger of it being overfished.

Lesser Slave lake, the largest lake in Alberta in which fishing commercially is carried on, and which is the main supply for both the market and home consumption, is in good condition. No depletion of fish is at all apparent, and, with careful supervision and certain limitations, either to the number of licenses issued, or the amount of fish allowed to be taken from it in any one season, should be a first-class fishing lake for years to come.

Complaints having reached me from several persons as to the large increase in the number of jackfish, and the damage they were doing to the whitefish, I had a careful investigation made, with the result that it was found that the complaints were not borne out by facts. Jackfish are only numerous in Lesser Slave lake at two points, Firoux bay and Auger bay, and it may be stated that they are not more numerous at the present time than during the last seventeen years; further, that they are not increasing rapidly as the complaints would lead one to believe. The catch this year of jackfish is almost one-third that of whitefish, and as this, so far as I can ascertain, has been the normal proportion for years past, and at present jackfish are a valuable fish, the price paid being very little less than that for whitefish, there does not seem to be any good reason for taking steps to eliminate the jackfish from Lesser Slave lake.

During August several firms began buying fish at this lake, and great activity followed. Competition was keen and the fishermen found a steady market at fair prices. During the winter season there was a great demand for licenses, all of which could not be granted. As certain licenses which were not being used were available for cancellation, steps were taken to do this and issue new licenses, but as the applicants had left the matter until late in the season, and it was not possible for the fishery officer to personally check up the men who were actually using their licenses under a week or ten days, and send his report in, it was impossible to get matters in such shape that the transfers could be arranged, until there only remained two weeks in which to fish. This being the case, the applicants decided that it was too late to commence fishing.

Preparations are being made on a large scale for the operations during season 1916-17. Several new ice-houses, etc., have been erected, and in the neighbourhood of 3,000 tons of ice have been put up. A great number of fishermen have signified their intention of applying for licenses.

During this year the total catch of Lesser Slave lake has almost doubled. The total catch of fish of all kinds for year 1914-15 being 7,533 hundredweight, this year it is 11,198 hundredweight, an increase of 4,665 hundredweight.

The total catch of fish of all kinds during the summer season was 3,613 hundredweight, that of the winter season 7,585 hundredweight.

In past years commercial licenses have been granted for Lesser Slave lake; this year nine were granted in the summer-fishing season, but reduced to five in the winter-fishing season. This class of licenses could be eliminated in the future without hardship to any person, and only fishermen's licenses granted. By doing this five more fishermen's licenses would be available, thereby giving employment to men, who, under a limited number of licenses, could not procure one.

During the year 1915-16 there were 7½ cars of fish of all kinds, amounting to 1,250 hundredweight, shipped from Lesser Slave lake to points in the United States, seven cars going to Chicago and one-half car to Baltimore.

The total amount of fish shipped from the province of Alberta to the United States in 1915-16 was 3,283.25 hundredweight. But it is probable that a portion of this fish was taken in Saskatchewan in Cold and Primrose lake.

All the officers of this inspectorate have performed their duties faithfully and efficiently during the year.

I am, sir, your obedient servant,

S. H. THOMPSON,
Acting Inspector of Fisheries.

REPORT ON THE FISHERIES OF SOUTHERN ALBERTA.

G. S. Davidson, Esq.,
Chief Inspector of Fisheries,
Indian Head, Sask.

Sir,—I have the honour to submit my report on the fisheries of southern Alberta for the year 1915-16.

From the anglers' point of view the past year was not a good one, as the incessant rains during May, June, and July put the different streams in a very deplorable state for angling. It was about the middle of August before angling was at all good, and from then only until about the middle of September.

As in the two previous years, there was a plentiful supply of Rocky Mountain whitefish, or, as they are called by the anglers here, grayling. There were also large numbers of young cut-throat trout. I attribute this to the fact that the close seasons were strictly observed during the last three years.

The number of anglers decreased about 10 per cent, which is accounted for by the large number of men who have enlisted in the overseas forces.

I am pleased to report that we have this year, as in the previous year, received the hearty co-operation of a great many anglers in having the regulations properly carried out and enforced.

There were twenty-six convictions during the year for the following offences:—

Angling during close season	11
Fishing without permit	6
Using night lines	4
Using net	1
Using a gang of hooks	1
Exposing greyling for sale during the close season	1

Of those convicted, nineteen were foreigners and seven British born.

I am pleased to say that there were no traces of dynamiting on the different streams, owing to the vigilance of the various guardians.

Anglers were distributed on the different streams as follows (approximately):—

Clearwater and tributaries	30
Dog pond	50
Bow river	500
Jumping pond	250
Fish creek	500
Sheep creek	500
Willow	150
St. Mary's river	150
Highwood	700
Pincher creek	600
Old Man's river	600
Elbow river	500

The number and species of fish caught in the several streams and tributaries are approximately as follows:—

	Trout.	Grayling.
Bow river	20,000	15,000
Clearwater	1,000	500
Dog pond	2,000	—
Jumping pond	10,000	10,000
Fish creek	15,000	15,000
Elbow river	12,000	10,000
Sheep creek	20,000	15,000
Highwood	25,000	15,000
Willow creek	10,000	5,000
St. Mary's river	7,000	4,000
Pincher creek	20,000	7,000
Old Man's river	25,000	20,000

In anticipation of the veterans returning from the front at no distant date, when angling will be carried on to a much larger extent than at present, I would recommend the stocking of the different streams with fry as soon as possible.

As in the past, we have received valuable assistance from the R.N.W.M.P. in all the districts of southern Alberta.

I am, sir, your obedient servant,

N. J. HOAD,
Fishery Officer.

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material, used in the Fishing Industry in the **Northern District**, Province of **Saskatchewan**, during the year 1915-16.

Number.	Fishing Districts.	Boats.					Gill-Nets.		Hoop-Nets.		Lines.		Freezers and Ice-houses.		Piers and Wharves.		Number.
		Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	
			$		$			$		$		$		$		$	
1	Cold and Primrose Lakes	11	300			11	173	2435			61	61					1
2	Frog, Fishing and Prairie Lakes	8	80			8	37	190			40	40					2
3	Jack Fish and Murray Lakes	20	850	5	1300	25	160	1115			500	500	4	125	2	50	3
4	Turtle and Bright Sand Lakes	8	150	2	600	10	242	1557			50	50	1	50	1	20	4
5	Loon, Waterhen and Fishing Lakes						127	865			200	200					5
6	Ile a la Crosse Lakes	194	3400			194	209	4180									6
7	Dorè, La Plonge and Smoothstone Lakes						168	2520									7
8	Stony, Devils and Ladder Lakes	10	250			10	67	717			75	75					8
9	Montreal und Trout Lakes	8	120			8	56	345									9
10	Candle, Sturgeon, etc. Lakes	25	405			25	44	425			290	290					10
11	Wakaw, Lenora and Fishing Lakes	45	600			45	6	60			230	230					11
12	La Ronge Lakes	20	300			20	91	930									12
13	Green Lake and Beaver River	15	197			15	60	600			35	35					13
14	Saskatchewan River	12	428	1	175	1	36	375	92	510	200	200					14
	*Totals	376	7080	8	2075	372	1476	16314	92	510	1681	1681	5	175	3	70	

RETURN showing the Quantities and Values of all Fish caught and marketed or consumed locally, for the Northern District, Province of Saskatchewan, during the year 1915-16.

Number.	Fishing Districts.	Trout, cwt.	Trout, value.	Whitefish, cwt.	Whitefish, value.	Pickerel, cwt.	Pickerel, value.	Pike, cwt.	Pike, value.	Tullibee, cwt.	Tullibee, value.	Goldeyes, cwt.	Goldeyes, value.	Mixed fish, cwt.	Mixed fish, value.	Number.
			$		$		$		$		$		$		$	
1	Cold and Primrose Lakes	1498	5992	2078	8312	100	400	185	555	.....	.....	.....	.....	68	136	1
2	Frog, Fishing and Prairie Lakes	.....	.....	139	696	....	.....	91	273	....	.....	....	.....	..	.....	2
3	Jack Fish and Murray Lakes	.....	.....	1246	4984	122	488	288	864	.....	.....	...	...	40	80	3
4	Turtle and Bright Sand Lakes	.....	.....	470	1880	....	.. ..	271	813	42	126	...	.....	86	172	4
5	Loon, Waterhen and Fishing Lakes	.....	.....	1624	6721	87	352	255	765	20	80	.....	.. ..	145	290	5
6	Ile a la Crosse Lakes	.....	.....	6529	19587	875	2625	2486	4972	103	206	.. ...	.....	1276	2552	6
7	Dore, La Plonge and Smoothstone Lakes	500	2500	5724	21896	.. ...	.....	277	831	.. ..	.....	.. ..	.....	1080	2174	7
8	Stony, Devils and Ladder Lakes	....	.	630	3150	88	342	212	1170	.....	.....	....	.....	120	300	8
9	Montreal and Trout Lakes	20	140	336	1940	97	495	108	510	.	.....	.....	.....	137	627	9
10	Candle, Sturgeon, etc. Lakes	....	. ...	256	1460	149	1490	739	4527	.....	....	.....	.....	136	734	10
11	Wakaw, Lenora and Fishing Lakes	..	...	.....	.....	463	4315	485	4410	...	....	..	...	270	2060	11
12	La Ronge Lakes	200	1000	1247	3741	452	1362	435	870	....	....	...	...	278	556	12
13	Green Lake and Beaver River	.	.....	517	2068	70	280	106	318	8	16	.....	.. ..	300	300	13
14	Saskatchewan River	.....	.....	7	70	16	160	31	310	.....	.....	4	40	592	2960	14
	Totals	2218	9632	20803	76505	2519	12309	5969	21218	173	428	4	40	4528	12941	

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RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material, used in the Fishing Industry in the Southern District, Province of Saskatchewan, during the year 1915--1916.

Number.	Fishing Districts.	Boats.					Gill Nets. 60 yds. each		Lines.		Freezers and Ice-houses.	
		Row.	Value	Gasoline.	Value	Men.	No.	Value	No.	Value	No.	Value
			$		$			$		$		
1	Long and Buffalo Lakes	34	850	2	450	144	680	7,045			12	550
2	Qu'Appelle Valley	30	240	15	2,000	34	120	960	600	600	8	80
3	Lac Pelletier	10	150	1	100	25	110	880				
4	Devil's and Fishing Lakes	117	2,340	16	2,700	30	1	5				
5	Dundurn	2	15			4	25	250				
6	Oxbow	1	10			2	1	5				
7	Round Lake					9	11	55				
8	Crooked Lake	46	300	15	2,000	300	5	45	299	299		
9	Katepwa					7	30	250				
	Totals	234	3,905	43	7,250	555	983	9,495	899	899	20	630

RETURN showing the Quantities and Values of all Fish caught, and marketed or consumed locally, for the Southern Division, Province of Saskatchewan, during the year 1915--1916.

Number.	Fishing Districts.	Whitefish.		Pickerel.		Pike.		Perch.		Tullibee.		Goldeyes		†Mixed Fish.	
		*Cwt.	Value	Cwt	Value	Cwt.	Value	Cwt	Value	Cwt.	Value	Cwt	Value	Cwt	Value
			$		$		$		$		$		$		$
1	Long and Buffalo Lakes	2,465	12,325	520	2,600	824	4,120			42	210			250	500
2	Qu'Appelle Valley	30	210	59	236	91	364	13	52	769	3,076			8	24
3	Lac Pelletier	30	300			15	120							2	10
4	Devil's and Fishing Lakes					520	3,120							10	50
5	Dundurn			11	55	33	165					35	175	14	42
6	Oxbow					7	56							1	5
7	Round Lake	600	3,000	2	6	1	3							6	6
8	Crooked Lake			20	100	45	225					5	25	2	10
9	Katepwa	8	80	9	45	30	150	4	20	263	1,315			3	15
	Totals	3,133	15,915	621	3,042	1,566	8,323	17	72	1,074	4,601	40	200	296	662

*Cwt. =100 pounds. "Mixed Fish" includes greyling, bull-heads and ouananiche.

RECAPITULATION

Of the Yield and Value of the Fisheries in the Province of Saskatchewan, during the Year 1915-16.

Kinds of Fish.		Quantity.	Value.
			$
Salmon	*Cwt.		
Trout	"	2,218	9,632
Whitefish	"	23,936	92,420
Herring	"		
Bass	"		
Pickerel	"	3,140	15,351
Pike	"	7,535	29,541
Sturgeon	"		
Eels	"		
Perch	"	17	72
Maskinongé	"		
Tullibee	"	1,247	5,029
Cat-fish	"		
Goldeyes	"	44	240
Mixed fish	"	4,824	13,603
Caviare	"		
Total			165,888

*Cwt. = 100 lb.

RECAPITULATION

Of the Number and Value of Vessels, Boats, Nets, Traps, etc., used in the Fisheries in the Province of Saskatchewan, during the year 1915-16.

	Number.	Value.
		$
Steam Vessels or Tugs		
Boats (sail and row)	610	10,985
" (gasoline)	51	9,325
Gill-nets, Seines and other nets	2,459	25,809
Hoop nets	93	510
Lines	2,580	2,589
Freezers and Ice-houses	25	805
Smoke and Fish-houses		
Piers and Wharves (private)	3	75
Total		50,089

Number of men employed in Boats 927

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material, used in the Fishing Industry in the **Northern District**, Province of **Alberta** during the year 1915-16.

Number.	Fishing District.	Boats.					Gill Nets.		Lines.		Freezers and Ice-houses.		Smoke and Fish-houses.		Piers and Wharves.		Persons Employed in Freezers, Fish-houses, etc.	Number.
		Row.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	
			$		$			$		$		$		$		$		
1	Athabasca					26	85	750									3	1
2	Beaver Hills Lake	10	200			22	24	350									3	2
3	Buck Lake					43	31	125										3
4	Buffalo Lake	4	40			11	5	20										4
5	Chip Lake and Edson					6	2	15										5
6	Conjuring and Gull Lakes					82	2	15	80	60								6
7	Lac la Biche	20	300			31	87	525			2	50						7
8	Lac Ste. Anne	33	383			34	76	475			4	155						8
9	McLeod Lake					6	6	30										9
10	Ministic	16	320	4	125	30	8	80			1	10						10
11	Moose Lake	2	25			25	20	200										11
12	Saddle Lake	7	70			32	50	400										12
13	Shining Bank	8	80			8	20	200										13
14	Sturgeon Lake	6	60			10	22	95										14
15	Sturgeon River	10	100			50	17	170	45	23								15
16	Sylvan Lake					25			25	12								16
17	Wabamun Lake	2	155	8	1,450	51	273	2,000			25	1,300	5	175	15	300		17
18	Pigeon Lake	34	450			71	91	545			4	78						18
19	Lesser Slave Lake	32	1,150	3	2,800	153	335	3,685			12	1,800	6	600			10	19
		184	3,333	15	4,375	716	1,154	9,680	150	95	48	3,393	11	775	15	300	16	

RETURN showing the Quantities and Values of all Fish caught, and marketed or consumed locally, for the Northern District, Province of Alberta, during the year 1915-16.

Number.	Fishing Districts.	Trout.		Whitefish.		Pickerel.		Pike.		Perch.		Tullibee.		Goldeyes.		Mixed Fish.		Number.
		*Cwt.	Value.	Cwt.	Value.	Cwt.	Value.	Cwt.	Value.	Cwt.	Value.	Cwt.	Value.	Cwt.	Value.	Cwt.	Value.	
			$		$		$		$		$		$		$		$	
1	Athabasca			1,750	7,000	100	300	120	360	20	40	100	200			200	200	1
2	Beaver Hills Lake							80	400							20	60	2
3	Buck Lake			138	552			70	210									3
4	Buffalo Lake							173	519									4
5	Chip Lake and Edson	4	20			1	5	4	20							3	6	5
6	Conjuring and Gull Lakes					2	6	20	60							1	2	6
7	Lac la Biche			1,093	3,279	147	294	365	730	9	18	71	142			16	32	7
8	Lac Ste. Anne			432	2,160	18	54	89	267			43	215			4	8	8
9	McLeod Lake			15	75			3	12									9
10	Ministic							80	400	3	12			5	25	50	150	10
11	Moose Lake			109	436	20	60	70	310			84	252			30	30	11
12	Saddle Lake	240	720	280	840	100	250	125	250							20	20	12
13	Shining Bank			67	268			5	15									13
14	Sturgeon Lake			50	250	5	20	260	780							10	20	14
15	Sturgeon River					150	750	300	1,500					50	200	50	150	15
16	Sylvan Lake					2	10	35	105	20	100			2	6	10	10	16
17	Wabamun Lake			3,982	13,939	13	52	602	1,204									17
18	Pigeon Lake			352	1,760	14	70	129	390							16	32	18
19	Lesser Slave Lake	102	663	8,768	21920	961	2,410	950	1,425			50	125			364	364	19
	Totals	346	1,403	17,036	52,479	1,536	4,281	3,480	8,957	52	170	348	934	58	231	794	1,084	

* Cwt. = 100 lbs. † "Mixed Fish" including greyling, bull-heads and ouananiche.

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats, and the Quantity and Value of all Fishing Gear and other Material, used in the Fishing Industry in the Southern District, Alberta, during the year 1915-16.

Number.	Fishing Districts.		Lines.	
		Men Anglers.	No.	Value.
				$
1	Bow River	600	600	3,000
2	Clear water River	50	50	100
3	Dog Pound Creek	50	50	100
4	Jumping Pound Creek	200	200	1,000
5	Fish Creek	300	300	1,500
6	Elbow River	450	450	2,250
7	Sheep Creek	500	500	2,500
8	Highwood River	700	700	3,500
9	Willow Creek	70	70	350
10	St. Marys River	150	150	600
11	Pincher Creek	300	300	1,500
12	Old Man's River	1,300	1,300	5,800
13	Chestermere Lake	300	300	450
14	Red Deer River	25	25	125
	Totals	4,995	4,995	22,775

RETURN showing the Quantities and Values of all Fish caught, and marketed or consumed locally, for the Southern District Province of Alberta, during the year 1915-16.

Number.	Fishing Districts.	Trout.		Pickerel.		Pike.		Goldeyes.		†Mixed fish.	
		Cwts.	Value.	Cwts.	Value	Cwts.	Value.	Cwts.	Value.	Cwts	Value.
			$		$		$		$		$
1	Bow River	100	150							75	750
2	Clearwater River					10	100			5	50
3	Dog Pound Creek									20	200
4	Jumping Pound Creek	60	900							100	1,000
5	Fish Creek	75	1,125							150	1,500
6	Elbow River	60	900							100	1,000
7	Sheep Creek	100	1,500							150	1,500
8	Highwood River	112½	1,875							150	1,500
9	Willow Creek	50	750							50	500
10	St. Mary's River	35	525							40	400
11	Pincher Creek	100	1,500							70	700
12	Old Man's River	100	1,500							100	1,000
13	Chestermere Lake					120	1,200				
14	Red Deer River			10	100	50	500	12	120		
	Totals	792	12,175	10	100	180	1,800	12	120	1,010	10,100

RECAPITULATION

Of the Yield and Value of the Fisheries in the Province of Alberta during the year 1915-16.

Kinds of Fish.	Quantity.	Value.
Trout	*Cwts. 1,138	13,878
Whitefish	17,936	52,479
Pickerel	1,546	4,381
Pike	3,660	10,757
Perch	52	170
Tullibee	348	934
Goldeyes	70	351
Mixed fish	1,804	11,184
Total		94,134

*Cwt. = 100 lbs.

RECAPITULATION

Of the Number and Value of Vessels, Boats, Nets, Traps, etc., used in the Fisheries in the Province of Alberta during the year 1915-16.

—	Number.	Value.
Boats (sail)	184	3,333
" (Gasoline)	15	4,375
Gill-nets, seines and other nets	1,154	9,680
Lines	5,145	22,870
Freezers and ice-houses	48	3,393
Smoke and fish-houses	11	775
Piers and Wharves (private)	15	300
Total		44,726

Number of men employed in vessels or tugs	
" " boats (including anglers)	5,711
" persons employed in fish-houses, freezers, etc	16
	5,727

APPENDIX 8.

YUKON TERRITORY.

REPORT ON THE FISHERIES OF THE YUKON.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit the following report on the fisheries of the Yukon Territory for the fiscal year 1915-16, together with the statistical returns showing the yield and value of fish, and amount and value of material used.

You will observe that the catch was not so large as that of the previous year. Two reasons can be assigned for this: we had the lightest run of salmon in the Yukon river, from which the bulk of salmon is taken, since 1905, whilst the previous year was the banner one since 1898. Also a number of experienced fishermen enlisted for service at the front at the outbreak of the war. Some of these being lake fishermen the catch of whitefish was reduced.

It is to be deplored that fish-wheels are scattered along the lower Yukon river right up to the Canadian boundary line, about eighty miles below Dawson.

Our lakes seem to be as well stocked as ever with both whitefish and lake trout.

Teslin, Tagish, and Big lakes are fished principally by Indians, and lake LaBarge, which was the first of the large lakes to be fished extensively, shows no diminishing in numbers.

Albert lake on the Little Salmon river was invaded last year for the first time by white fishermen. The problem which confronted the fishermen heretofore was lack of transportation; now, however, they have erected freezers so that the fish can be held and shipped to Dawson during the summer.

There is a marked decrease of greyling in the Klondike river. This is not to be wondered at, as the big dredges kept the water in a muddy condition.

The upper reaches of the Upper Stewart and Pelly rivers have been practically untouched, excepting by Indians, on account of lack of transportation facilities. If the quartz mines in what is known as the Mayo district on the Upper Stewart are to be extensively worked, which seems assured, a fine industry will be built up there.

You will observe by the returns forwarded that the catch of whites and Indians are under different headings.

All the fishermen who fish here from year to year are law-abiding; the close season being well observed and all seem well satisfied with the laws since the amendments of a year ago.

With regard to violation in other respects, I beg to report that during the past year I destroyed three dams at as many creeks flowing into the Yukon. I do not think, however, they were built by licensed fishermen, as there were none fishing near these localities.

The following number of licenses were issued during the year:—

Commercial	13
Domestic	11
Total	24

I am, sir,
Your obedient servant,

C. C. PAYSON,
Inspector of Fisheries.

RETURN showing the Number of Fishermen, etc., the Number and Value of Tugs, Vessels and Boats and the Quantity and Value of all Fishing Gear and other Material used in the Fishing Industry in the Yukon Territory, during the Year 1915-16.

Number.	Fishing Districts.	Boats.					Gill-Nets.		Lines.		Freezers and Ice-houses.		Smoke and Fish-houses.		Piers and Wharves.		Persons employed in Freezers, Fish-houses, etc.	Number.
		Sail and Row.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Number	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
	Owned by Whites.		$		$			$		$		$		$		$	No.	
1	Dawson	9	300	1	180	14	40	480	40	20	2	4,700	3	300			16	1
2	Pelly district	4	120			8	20	200	20	10			1	100			2	2
3	Forty-Mile	4	120			8	12	120	35	15			1	175			2	3
4	Lake La Barge	6	180			14	18	170	60	20					1	300		4
5	Carcross	7	210			15	34	409	40	20								5
6	Klondike River	6	175			12	18	180	25	12			1	100			2	6
7	Thistle and Sixty-Mile	3	90			4	20	200	16	8								7
8	Albert Lake	4	60			4	12	120	30	14	1	250					4	8
9	All other parts of Yukon Territory	8	240			8	22	220	60	15								9
	Owned by Indians.																	
10	Salmon River	8	150			20	8	80										10
11	Teslin Lake	5	80			12	24	240										11
12	Tagish	4	60			16	22	220										12
13	Big Lake	2	40			6	8	80										13
14	McQuestion	3	60			6	7	50										14
15	Selkirk and Pelly	12	240			20	40	280	35	15								15
16	Duncan	4	80			8	12	84										16
17	Porcupine	4	80			9	8	56										17
18	Peel River	6	180			12	11	70										18
19	Rampart	8	200			16	10	65										19
20	Hootchi	6	200			12	12	84										20
	Totals	113	2,865	1	180	224	358	3,408	361	149	3	4,950	6	675	1	300	26	

RETURN showing the Quantities and Values of all Fish caught and marketed or consumed locally, for the Yukon Territory during the Year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Trout, cwt.	Trout, value.	Whitefish, cwt.	Whitefish, value.	Pickerel, cwt.	Pickerel, value.	Pike, cwt.	Pike, value.	Maskinongé, cwt.	Maskinongé, value.	†Mixed fish, cwt.	Mixed fish, value.	Number.
	Caught by Whites.		$		$		$		$		$		$		$	
1	Dawson	200	2,000	8	240	30	750	2	50	2	50	3	75	100	2,000	1
2	Pelly district	50	500	24	720	100	2,500					5	125	20	400	2
3	Forty-Mile	140	1,400	4	120	5	125					1	25	30	600	3
4	Lake La Barge			9	270	115	2,875					2	50	30	600	4
5	Carcross			50	1,500	40	1,000					4	100	20	400	5
6	Klondike River	40	400	10	300	15	375							80	1,600	6
7	Thistle and Sixty-Mile	25	250	5	150	8	200							60	1,200	7
8	Albert Lake			6	180	40	1,000									8
9	All other parts of Yukon Territory	130	1,300	30	900									100	2,000	9
	Caught by Indians.															
10	Salmon River	140	1,400	8	240	30	750					3	75	72	1,440	10
11	Teslin Lake			12	360	40	1,000							80	1,600	11
12	Tagish			10	300	50	1,250							70	1,400	12
13	Big Lake			5	150	10	250							30	600	13
14	McQuestion	120	1,200	5	150	25	625							40	800	14
15	Selkirk and Pelly	300	3,000	20	600	75	1,875							50	1,000	15
16	Duncan	50	500	10	300	20	500							30	600	16
17	Porcupine	40	400	3	90	25	625							20	400	17
18	Peel River	120	1,200	20	600	50	1,250							25	500	18
19	Rampart	115	1,150	12	360	70	1,750							64	1,280	19
20	Hootchi	100	1,000	20	600	50	1,250							50	1,000	20
	Totals	1,570	15,700	271	8,130	798	19,950	2	50	2	50	18	450	971	19,400	

* Cwt. = 100 lbs. † Mixed fish includes greyling, bull-head and ouananiche.

RECAPITULATION.

Of the Yield and Value of the Fisheries in the Yukon Territory, during the year 1915-16.

Kinds of Fish.	Quantity.	Value.
		$
Salmon ..... *Cwt.	1,570	15,700
Trout ..... "	271	8,130
Whitefish ..... "	798	19,950
Pickerel ..... "	2	50
Pike ..... "	2	50
Maskinongé ..... "	18	450
Mixed Fish ..... "	971	19,400
		63,730

* Cwt.=100 lbs.

RECAPITULATION.

Of the Number and Value of Vessels, Boats, Nets, Traps, etc., used in the Fisheries in the Yukon Territory, during the year 1915-16.

——	Number.	Value.
		$
Boats (gasoline)	1	180
" (sail and row)	113	2,865
Gill-nets	358	3,408
Lines	361	149
Freezers and ice-houses	3	4,950
Smoke and fish-houses	6	675
Piers and wharves (private)	1	300
		12,527

Number of men employed in boats	224
" persons employed in fish-houses, freezers, etc	26
	250

APPENDIX 9.

BRITISH COLUMBIA.

To The Superintendent of Fisheries,
Department of Naval Service,
Ottawa.

SIR,—I have the honour to submit the following report on the fisheries of the province of British Columbia, for the fiscal year ended 31st of March, 1916.

COMMERCIAL VALUE.

The total value of the fisheries for the period mentioned is $14,538,320, exclusive of an estimated sum of $3,398,985 covering the home consumption by Whites and Indians. There is also an estimated valuation of $678,210 placed on halibut landed from American bottoms in British Columbia ports not included in the total value of the output of the province. The increase in value over the preceding year, exclusive of these, is $3,023,234. The quantity of salmon canned was 952,040 hundredweights, producing 1,133,381 cases, valued at $7,933,667. The value of canned salmon exceeded that of the previous year by $2,259,517, although a less number of cases was produced than in 1914-15, but the greater value is due to the enhanced price obtained for the manufactured article. The increase in the value of the fisheries for the year under review is due largely to the better prices obtained for canned salmon of all varieties, but the fact must not be overlooked, that each year an ever increasing quantity of salmon captured in the waters of this province are being used fresh, or preserved by other methods than canning, the increase this year over last year's operations being 30,121 hundredweights. The following table is interesting in this connection:—

—	1912-13.	1914-15.	1915-16.
Used fresh	84,441	214,102	204,616
Salted (dry	134,000	118,430	19,634
Mild cured	51,042	26,372	10,309
Smoked	5,019	7,904	4,382
Pickled		900	1,070
Exported to United States			146,083
Exported to Orient (dry salted dog salmon)			11,735
Totals	274,502	367,708	397,829

In last year's report attention was drawn to the fact that there was a decrease of some 9,000 hundredweights of halibut caught as compared with the previous season, 1913-14, and this year is again short of last year by some 19,000 hundredweights. There is no question but that this most valuable fishery is gradually declining year by year, and unless an international close season can be arranged of sufficient length to be of benefit to this fishery, its commercial life as a part of the fishing industry must of necessity be short.

DISTRICT NO. 1.

The narrative report submitted by Inspector Halladay shows in detail the conditions existing in district No. 1. The value-producing area is of course the salmon fishery of the Fraser river, from which waters salmon and products to the value of $3,338,056 were taken. This is most gratifying, especially as the season of 1915 is one of the off years for sockeye.

For some unaccountable reason the trap nets operated in Puget sound were not a success, consequently the American packers had many cans left unfilled, and to avoid carrying them over to another season, and to comply with their labour contracts, the fall variety of salmon, equal to 138,679 hundredweights were purchased at a most remunerative price from our fishermen and exported for packing purposes to the United States. Of course, this condition was unique and this market cannot be depended upon to such an extent each year.

The cod fishery in this district is increasing yearly, and it is satisfactory to note that the Canadian Fishing Company are kippering black cod, and that the sale of the same has reached a point where the captains of the halibut boats are instructed to bring in all of this species that they can produce. Heretofore these fish were taken off the halibut hooks and thrown away, thus becoming a complete loss. The black cod is now sold fresh, frozen, hard-salted, pickled, kippered and smoked.

It is certainly in the interests of the fishing industry that other varieties of deep-sea fish, which are now accounted of comparatively no value, should be experimented with and made to become of value as a food product.

The increase in the quantity of fish consumed throughout this province, as well as the whole Dominion, is of growing interest, as not only should it be a cheap article of diet, but it opens up new avenues for investment, which should prove remunerative. It would appear, however, that the investor and those who think they can earn a living by entering the fishing industry are turning their attention exclusively to canning operations as being a medium for getting rich quick, but it must be remembered that whilst canneries no doubt produce profit not equalled in many other lines of commerce, still they have their off seasons; as it is in the case of agriculture, so it is in the canning industry. Some seasons prove disastrous, and it greatly reduces the percentage of profit made in a successful year. It might be well here to give a note of warning that those entering the fishing industry should have a personal knowledge of the business, as in no venture can large sums of money be so completely and irredeemably lost as in this business, of which several notable cases are already on record. In many quarters the idea is gaining ground that every application for a cannery should receive favourable consideration, and if an investment is desired in this direction the Government should assist rather than retard. Such an assumption is not on the lines of good business, as unlimited canneries would mean unlimited fishing, with the result that the fisheries would be depleted, and the smaller investor would go to the wall while only the big companies would remain in operation.

The prevailing price for canned salmon can hardly be called normal, and when commerce again assumes normal conditions, the prices to the fishermen and manufacturers will no doubt reach a level.

DISTRICT NO. 2.

This district may be said to cover the northern coast of British Columbia, and includes such well-known fishing areas as Smiths inlet, Rivers inlet, Skeena river, Naas river, and the water surrounding Queen Charlotte islands. The total value of fish produced was $6,390,372, an increase of over $2,000,000 for the present year. As in other parts of the province, this increase is due largely to the higher prices obtained for all species of salmon, and also to market requirements which assured the sale of a larger pack of canned salmon of all varieties, especially those known as the fall run.

Rivers inlet was again very productive and exceeded the previous season's pack by over 30,000 cases, the majority of same being composed of sockeyes. From all informa-

tion obtained it would appear that the salmon of Rivers inlet are on the increase, which can be attributed to the good work being accomplished by the Dominion Government hatchery located on Owekano lake at the head of the inlet; to the spawning grounds of which all the sockeye entering Rivers inlet are ascending.

There was a record pack of salmon on both the Skeena and Naas rivers, due largely no doubt, to the ideal fishing conditions which obtained. The results show that the salmon industry of these rivers is certainly not on the wane, and with the present hatcheries continued and added to as conditions warrant, there is no reason why a full run should not be assured each season. To do this, however, both the canneries and the fishermen must assist the department in complying with the weekly close season and other regulations framed for the purpose of augmenting and continuing the present satisfactory conditions. The fishing guardians in their inspection of the spawning areas of the Upper Skeena report that the same were well seeded, which speaks well for a good season four years hence.

It is not possible to say very much as to the north coast and Queen Charlotte islands as the canneries were not in operation last year, but as I understand that during the season of 1916 both canneries will be operated, a better indication will be available for next year's report. It might be stated here that fall fish predominate, are plentiful, and with the present brisk demand for these varieties satisfactory results should be obtained.

Sockeye fisheries at Kimsquit were again a failure, and indications point to the necessity for greater protection and the possible increase of this species by the introduction of fry from such areas as they can best be spared.

In this district there are two classes of licenses, one known as "attached" and the other as "independent," the independent license being introduced as a means of encouragement to white men to take up permanent residence in the north and thus become a greater factor in developing the fisheries of this northern part of the province. The policy of both the Dominion and provincial departments in this connection is being taken advantage of to a greater extent each season, and whilst 456 of this class of license were issued in 1914, they were increased to 575 during the period under review. This privilege has induced many white settlers to follow fishing during a portion of the year, and whilst the larger percentage are new at the business, yet as the majority of them now have licenses from year to year the experience gained is making them more familiar each season with the industry, and there is no doubt that consistency on their part will develop an expert and most desirable addition to the fishing business.

DISTRICT NO. 3.

The marketed value of fish produced in this district is $3,638,306, as compared with $3,251,444 for the year previous. There is a decrease in the quantities of salmon and herring caught, but the value is increased owing to the higher prices received. As in district No. 1, so in this district the fall run of salmon found a market in the neighbouring state of Washington, where the necessity for the raw product created a great demand, and consequently higher prices to the fishermen. From a local standpoint it is to be regretted that this raw product should leave the country to be manufactured, as it means a decreased expenditure in this province for labour and for supplies required in the canning industry, but I am pleased to say that with the introduction of additional canneries it is hoped that the fish will in future be canned within the vicinity as arrangements to this end have been made in the district.

While the catch of herring was not up to that of the previous year, it is gratifying to note that the number of seines operated in this industry was largely reduced, whilst gill-netting received quite an impetus. Though the seine-caught herring find

their way to the Oriental market and are used as bait in the capture of halibut, the gill-net caught fish being larger are put up in barrels under the Scotch curing method, and as there was a great demand for this class the prices were good, and present indications are in the direction of greater development.

The fur sealing industry, as conducted by the Indians, appears to be more profitable from year to year. In 1913, 119 seals were caught, 257 in 1914, and 400 in 1915, with a valuation of $12,000. The methods of capture must of necessity be primitive, and whilst the temptation to violate regulations no doubt is great, Overseer Grice reports that no violations have taken place.

HALIBUT.

The total quantity of halibut landed at ports in British Columbia during the past fiscal year was 33,053,800 pounds, as compared with 21,444,400 pounds for the year ended March 31, 1915. By Order in Council of March 9, 1915, foreigners or foreign corporations were permitted to land fresh fish at ports in this province without payment of duties, and to trans-ship the same in bond to any port in the United States, or to sell such fish in bond to such local dealer or dealers as were properly and duly licensed to purchase, the fish to be exported in accordance with the bonding requirements, and, further, such vessels are permitted to purchase supplies and ship crews at any port in the said province. The main object for the granting of these concessions was to increase trade at the various ports affected. It was necessary that a market should be created for the quantity of herring caught by Canadian operators, and which though too small for curing purposes were excellent as bait. Unfortunately the herring caught by the means of purse-seines are not of a uniform size, and it is estimated that only about 40 per cent are sufficiently large for curing purposes, the other 60 per cent being suitable as bait. The system has yielded larger results to Canadian trade generally than was even anticipated by the most enthusiastic supporters.

From April 1, 1915, to March 31, 1916, 117 boats landed their catch at ports in this province, making 507 deliveries, aggregating 13,564,200 pounds. This halibut is carried over the Grand Trunk Pacific railway to New York and Chicago, and the city of Prince Rupert receives the benefit of the money expended for outfitting purposes, and in addition the money expended by the crews of the boats for personal purposes aggregates a sum which adds largely to the development of trade at this port.

The granting to American fishermen of the privilege of shipping their cargoes of fish in bond over Canadian railways has been the chief cause of the large increase in the quantity of deep-sea fish landed at British Columbia ports during the year just closed. In shipping over Canadian railroads, American fishermen have been able to save the long and expensive trip south to an American port, as well as the time which was formerly lost in making this journey. Americans have, no doubt, benefited by this policy, but much more have the conditions improved for Canadian ports and Canadian fishermen. The quantity of halibut received has attracted more buyers to the Coast, increasing competition with the inevitable beneficial results to the fishermen of a ready sale and a better price for the product of their labours. The price of halibut at the boat-side during the month of March last was 9¾ cents per pound. These conditions have stimulated the prosecution of this industry among Canadian fishermen, and the impetus thus received will have far-reaching and beneficial results, especially so amongst the smaller boats carrying from one to three dories. There was a considerable falling-off in the quantity of American-caught halibut landed during the months of February and March, due to a strike amongst the American halibut fishermen. With the greater demand for halibut, fishermen are prosecuting this branch of the industry on fishing banks farther from shore, but in these ventures larger boats are required. Another change receiving attention is the substitution of long-line fishing from the steamer itself, thus replacing the dories.

The city of Prince Rupert has doubtless reaped greater benefits than any other

port from concessions granted American-caught fish on account of its location and having the necessary railroad facilities for taking care of the transportation of fish, and on account of its comparative proximity to the extensive halibut banks of the northern Pacific ocean.

HERRING.

There has been a falling-off in the quantity of herring landed for the year just closed, as compared with the previous year, of 95,954 hundredweights. The total for 1914-15 was 563,406 hundredweights as against 467,452 hundredweights for the year just closed. Whilst there is a falling-off in the supply in all districts the greatest difference is in district No. 2, where the total catch of herring is less than 43 per cent of the catch for the previous year. Practically all the herring caught in this district are used as bait, and little gill-net fishing is done. There is no question but that there are herring in the deep water, but they are not coming in shore in shoals as previously was the case, and seining operations are all done in shallow water. During the past season the supply of herring for bait secured by the cold storage companies was small, and as the halibut industry is entirely dependent on a good supply of bait being available it was found necessary to allow fishing on the spawning reserve in the vicinity of Port Simpson. This reserved area was open to fishing in March, but even then the supply of bait secured is below requirements and will hardly be adequate to meet the needs of the district. Whilst herring caught as bait is a remunerative business, what effect has the wholesale use of seine nets on the fishery itself, and is the country receiving as much value in species as it should for the immense quantities of herring which are each year taken from its waters for bait purposes? Is not the time opportune for the extension of the Scotch curing method to the north, with the encouragement of a greater use of gill-nets which would take the larger fish and give the small ones time to develop?

The departure of the Wallace Fisheries into the industry of canning herring is to be commended as opening up a new field for this excellent fish, and 11,468 cases, with a valuation of $68,808, were put up by this firm, the introduction of which has opened up a permanent market for this class of canned goods.

The method of Scotch curing is also being developed as 5,253 barrels were put up under this method, having a valuation of $105,060. It is through such new ventures that the country receives a greater value from its assets, and it is hoped that in the future others will be interested in similar industries.

I would like to refer to the method adopted by the Indians of collecting large quantities of herring eggs right on the spawning grounds. The means adopted is to sink branches of trees weighted with stones, and the herring spawn becomes attached to these branches which are then lifted and the eggs dried in the sun. Few, if any, of these eggs are now used as food by the Indians on the coast, but are used as barter either through a trader or direct to the Indian tribes of the interior. This procedure may have given no grounds for complaint when there was no other drain on the herring industry, but with the growing commercial requirements it would appear that such waste should be curtailed, if not altogether stopped. It is a most difficult matter to make fishermen understand that they cannot fish on the spawning grounds when Indians are allowed to do so in the manner described.

OBSTRUCTIONS.

Attached hereto is a detailed report from Engineer J. McHugh who has charge of this branch in the province. A most necessary and valuable work is being performed by the department, and whilst the progress must be slow, owing to the isolated points where it is necessary to work, with the consequent absence of local labour and material, still much work has been done, and now that the removal of the disastrous obstruction in the Fraser river has been disposed of it is expected that the coming year will see

other streams needing attention given the same. It must be remembered, however, that during this time when the greatest economy is necessary, it is only the most important points that can be attended to. During the past year partial removal of obstructions was made in the Lardo river. Contracts were awarded for the removal of obstructions in the Hoestall river, Tom Brown lake and Blackwater river which are not yet completed, and the Somass river, Nanaimo river and Ellerslie channel are showing very satisfactory results from the work accomplished at these points.

SEA-LIONS AND HAIR SEALS.

Serious complaints continue to be received from the injury done to the salmon fishery by these mammals. Notwithstanding the fact that 749 seals and 2,875 sea-lions were destroyed during the season of 1915, it was only a drop in the bucket, especially as in the Fraser river, where the depredations from seals appear to be the greatest, only forty-eight of these mammals were destroyed, and it is prophesied by certain fishermen that unless a greater destruction takes place the spring salmon fishery is doomed. The bounty of $1 per seal does not seem to be a sufficient inducement to the fishermen to hunt these mammals in the Fraser, as it is estimated that only about one in five shot can be secured, and the amount realized is not a sufficient encouragement. On the other hand, the fishermen are the losers by the destruction caused by these seals, and it would appear that they themselves should take sufficient interest for their own welfare to help themselves by taking greater action, although the remuneration received may only be sufficient to supply them with ammunition. The Fisheries Branch is not responsible for the seals congregating in the Fraser river, and it is consequently only reasonable that the fishermen should give the department some assistance in helping to rid the waters of this nuisance. The few that are shot out of the herds frequenting the river in the early spring has no effect whatever, and to have any effect some other remedy must be applied. Perhaps the Fisheries Biological Board might have some suggestion to offer in this direction. The total sum expended in 1915 as a bounty on seals and sea-lions amounted to $6,499.

FISH CULTURE.

It is pleasing to note that there has been a largely increased distribution of fry of all kinds in 1915-16 as compared with 1914-15, the total being 110,275,657 fry for the year just closed as compared with 72,810,000 for the previous year.

The Fraser River watershed benefited to the extent of	71,544,800
The Skeena River watershed	16,284,257
Rivers inlet	11,993,200
Vancouver island	10,453,400

The hatcheries are well conducted and are doing a most valuable work, and it is the consensus of opinion that the salmon run in Rivers inlet is increasing. In fact the run of salmon to the Northern waters of British Columbia is on the whole on the increase, which is most gratifying considering the number of nets in use, and the great incentive the high prices give for the large production of all species of canned salmon.

The removal of obstructions to the ascent of fish, and the proper control and supervision of the spawning beds, together with proper conformity with the fishing regulations, should ensure the present satisfactory conditions from a quantity standpoint. There is one phase of the proper control and supervision of the spawning beds to which it is desirable that special attention should be drawn, and that is the concession now enjoyed by the Indians to take fish at all times and places for home consumption.

In considering the fisheries of the Fraser river it may be stated that all species of salmon ascending are harassed from the time they strike the mouth of the river until and after they reach their spawning grounds; from the mouth of the river to Mission bridge by the commercial fishermen, and from Mission bridge to Bridge

river by Indians. At Bridge river last year practically all sockeye which escaped the nets and succeeded in passing the canyon at Hell's Gate were taken by the Indians at Bridge river, at which point they may be stated to have practically reached their spawning grounds. This state of affairs, whilst perhaps not to such a great extent, prevails in many of the streams in the north, and it has been stated that this drain on the salmon life of the country is equal to the commercial catch, and gives no returns. Whilst the Indians may have a time immemorial right to certain fishing concessions, such concessions were granted under conditions entirely different from those of the present day, and with the ever-growing importance and value of the fishing industry of this province it behooves the Government to make some other arrangements which will protect the salmon from molestation when they have practically reached the breeding stage and the breeding grounds.

RIVER AND LAKE EXPLORATION WORK.

This work was again in the hands of Capt. J. F. Crichton, with the F.P.L. *Merrysea* placed at his service as being more adapted to the work than the larger launch *Fispa*. During the winter of 1915-16 he inspected and reported upon the spawning areas of the Central district. His report, which is instructive, is attached hereto, and is accompanied by photographs showing the different areas of water in which he worked. His work of the past season was unfortunately restricted by the inclement weather.

CANNERY INSPECTION.

The regulations covered by the administration of that portion of the Act respecting the inspection of canned meats and canned foods are still under consideration. Whilst a partially organized service for its enforcement, and the gathering of information on which applicable regulations could be based, was inaugurated, owing to the number of regulations to be adopted it was found necessary to obtain further information during the past season, consequently the final adoption of regulations was postponed.

There were three inspectors during the season of 1915, one for the Fraser river, another on Vancouver island, and a third covering Skeena river, Naas river, and the Queen Charlotte islands. These inspectors rendered good service in inspecting canneries during all stages of the canning operations. New machinery is being installed in many canneries, and as it is practically impossible to have a system of regulations covering both the old and new systems it was considered advisable to again postpone the framing of definite regulations. Every cannery operator in British Columbia, together with brokers and others engaged and interested in the canning business, has been asked for his views on this question, and with the volume of ideas and suggestions embodied in their reports it is hoped regulations can now be formulated which will cover all requirements, and which may be of a permanent nature.

WHALES.

Only 229 whales were captured as compared with 573 for the preceding year, valued at $148,383, as compared with $303,631 for 1914-15. The company engaged in this industry has been reorganized, and the operations will be continued on a more limited scale in future.

HEAD OFFICE.

Owing to the development of the fisheries throughout the province, the work of the head office increases accordingly. During the past year 4,885 letters were received, and 5,919 were dispatched, and a total number of 5,597 licenses were issued in addition to all the detailed work connected with the purchasing of supplies and the various statements required to carry on the official business connected with the fishing industry.

The office staff, inspectors of fisheries and all other fishery officials have performed their duties in a satisfactory manner, and their general interest to carry on the business of their respective districts in a fair and unbiased manner is to be commended. The fisheries service in this province has contributed no less than sixteen men to overseas battalions, and the subscriptions to the Patriotic Fund by the officers generally is most gratifying and speaks well for the loyalty existing amongst all ranks.

The following statement gives the number by districts of the different kinds of licenses issued during the past year:—

Licenses.	Districts.			
	No. 1.	No. 2.	No. 3.	Totals.
Anglers permits, special	1			1
Abalone		1		1
Clam	3	2		5
Crab	25	1	3	29
Herring, gill-net	28	19	76	123
" drag-seine	4	4	3	11
" purse-seine		10	13	23
Salmon, drag-seine		74	35	109
" purse-seine		17	44	61
" trap-net		2	10	12
" gill-net	2,616	2,181	153	4,950
Smelt or sardine	22			22
Sturgeon	7			7
Cod	2		44	46
Miscellaneous	73		52	125
Salmon canneries	21	36	12	69
Whaling stations		1	1	2
Reduction works (sea lions and hair seals)		1		1
	2,802	2,349	446	5,597

ADVISORY BOARD.

I wish to again bear testimony to the usefulness of this board in connection with arriving at decisions which are in the best interests of the industry in this province generally. At the meetings held we have the views and advice of scientists and experts which are most necessary when a decision is required on any one phase of the industry which is to be controlled by regulations.

D. N. McIntyre, Esq., Deputy Commissioner of Fisheries for the province, and the undersigned, as members of this board, bear testimony to the good results obtained, and to the assistance we have received from the departmental members in giving a free and unbiased discussion and advice on all matters considered. Not only is the Board of great usefulness in this respect, but it brings together the officials of the Inside and Outside Service, and a free discussion and presentation of individual views is most helpful. It would be of great satisfaction to the fishing industry of British Columbia if arrangements could be made whereby a meeting of the board could take place in the province. It would give those interested in the various branches of the fishing industry an opportunity of meeting the board and discussing many subjects of interest both to the trade and to the department.

GENERAL REMARKS.

During the summer of 1915 the coast was visited by W. A. Found, Esq., Superintendent of Fisheries for the Dominion, a visit which was greatly appreciated by the respective fishery officers and by many branches of the industry, representatives of which waited upon this officer. Such visits are of great benefit to all, and it would be well

if other heads of the various branches of the department in Ottawa could also visit the coast and thus obtain first-hand information on conditions as they exist here.

I am glad to say that the Provincial Fisheries Department has been most courteous in considering matters which it was found necessary to discuss with them, and these discussions have, I feel sure, been the means of reaching conclusions most beneficial to the trade. All fishery matters have received most careful consideration both by the department at Ottawa and this office, and whilst it has not been possible to meet the requirements and views of all, it is thought that decisions reached have been in the best interests of the proper protection and development of the fisheries of this province.

I have the honour to be, sir,
Your obedient servant,

F. H. CUNNINGHAM,
Chief Inspector of Fisheries.

REPORT OF THE FISHERIES OF DISTRICT No. 1.

To the Chief Inspector of Fisheries,
New Westminster, B.C.

SIR,—I have the honour to submit herewith my annual statistical report of the fisheries of district No. 1, British Columbia, for the fiscal year 1915-16.

I am pleased to report a considerable increase in the total valuation of the products of the industry both over the corresponding year in the four-year cycle and also over last year, as the following statement will indicate:—

TOTAL VALUE OF FISHERIES.

1912-13	$6,263,320
1914-15	3,984,091
1915-16	8,092,127

This is accounted for mainly by the fact that a very much better price was obtained for dog salmon, which previously had almost entirely been shipped to the Orient in a salted condition, but this year was sold fresh and exported to the United States; and also that in former years very little account had been taken of the enormous quantities of fish consumed by the Indians and whites as well as Orientals within our borders, of which it has not been possible to obtain an accurate return. This year an estimated valuation has been placed on this item which you will observe appears in the foot notes on form 5, together with the quantity of halibut landed in American bottoms.

SALMON.

With regard to the output of salmon I may say I consider the showing is very favourable as compared with four years ago, as there is an increase in valuation including the canned, exported fresh and salted dog salmon, of $111,380. This would no doubt have been materially increased had the run of spring salmon been up to the average, but for some reason this variety was, during the year, very scarce.

I wish here to briefly refer to the run of cohoe which were in size unusually small and as a consequence comparatively few were captured in the 7-inch mesh nets, which size was the smallest allowed to be used after the 30th of September. A peculiarity of this phenomenon was that many of these cohoe, though apparently immature so far as size was concerned, ascended the various streams and spawned, and afterwards returned again to salt water; others, though not perhaps in such great numbers, followed the spawning fish to the spawning grounds but never ripened. These also remained up stream from three to four weeks and again returned to the sea.

The fact that a greater number of these fish could not be captured in the 7-inch mesh nets caused a temporary unrest among the fishermen, and there was a disposition on the part of some to use 5¾-inch mesh nets. Representations, you will remember, were made to the department by them with a view to having the open season for sockeye nets extended, but the department did not deem it expedient to grant their request. The Deparment's decision in this matter was, in my opinion, in the best interests of the fisheries, for the reason that had the use of 5¾-inch nets been permitted throughout the whole season without extending the weekly close time to permit a sufficient number of the parent fish to reach the spawning grounds, the detrimental effect would have been experienced in succeeding years.

HALIBUT.

This, as you are aware, is practically all taken in district No. 2 and in neutral waters. There has been for the past few years a steady falling-off in the quantity of halibut reported from this district, partially due to the fact that much of this commodity is now being landed in Prince Rupert which formerly came to Vancouver. The total valuation of Canadian halibut for this district is $753,130.

HERRING.

There is a slight falling-off in this fish as compared with last year, due entirely to an unaccountable scarcity. The quality, however, was fully up to the average and maintained throughout the season the reputation of being the largest and best herring on the coast. Those taken in this district were principally used fresh and for kippers and, on account of their superior condition, quality, and size, commanded the very highest price.

DOG SALMON.

This commodity has almost entirely, up till this year, been shipped to the Orient in a salted condition. This year, however, there was a great demand for it in the United States, and consequently almost all was purchased by American buyers at a much better price to the fishermen than usual.

The value of this variety of salmon is rapidly increasing in the estimation of the people, and the impression which in the past has been conveyed to the public mind by the name given to it has been, in my opinion, quite unfortunate.

COD.

This is rapidly becoming a valuable part of the fisheries of this district. Though the returns show a slight decrease as compared with last year, I am free to admit that the aggregate monthly returns do not fairly represent the quantity caught and marketed. By far the major portion of this is captured by the Japanese by means of hook and line, and as no license is required for such operations, it is very difficult for the patrol officers to ascertain how many are employed in this class of fishing. A great deal of this, too, is disposed of to the Oriental peddler direct from the boat side, and in the absence of any regulation compelling the fishermen to give a return to the officer, it is impossible to obtain an accurate statement. This product, owing to its excellence as food, is rapidly increasing in demand, and this part of the industry from present indications has a bright future.

OTHER VARIETIES.

I am pleased to state that there is a slight increase in the total valuation of other fish over last year. The value of these miscellaneous varieties of food fish is becoming more apparent from year to year, and the policy of giving every possible encouragement to those engaged in this class of fishing would be a wise one. It would not only materially assist in supplying the increasing demand for fish food, but possibly

would divert a certain amount of attention from the salmon fisheries, which, it would appear, are in grave danger of being overworked.

BY-PRODUCTS.

This part of the industry has been growing in importance from year to year. The output of the reduction works owned and operated by the Canada Fish Products, Limited, this season was slightly below that of 1914-15, but the products, both guano and oil, commanded a much better price on the market. There is doubtless an increasing demand for fish by-products, and the encouragement given to this establishment by the department is well justified. Though labouring under certain unavoidable difficulties at times, this company again this year did excellent work.

HAIR SEALS.

In referring to this subject I can only emphasize what I have reported to you from time to time, the fact of the tremendous destruction, especially to the spring salmon, by hair seals. While it is true that a great many have been destroyed since the adoption of the bounty policy, there is no doubt that the efforts of those engaged in hunting them have been entirely inadequate. This year they seemed to be as numerous as ever, and unless some more effective means of destroying them can be devised, I fear the value of the spring salmon fisheries of the Fraser will continue to gradually diminish, and will eventually become practically nil.

As a means of destroying these pests, I would strongly recommend the experiment of the use of explosives at the Sand Heads at the mouth of the Fraser river and in other places where they congregate during the breeding season.

GENERAL REMARKS.

On the whole the outlook for the fisheries for this district for the future is quite encouraging. With the continuance of the enforcement of the regulations as they affect the protection of the natural spawning grounds, as well as the splendid efforts in connection with the artificial propagation, there can be no doubt that wonderful results may be obtained.

This district comprises the most southern and easterly portion of the mainland of the province, including Howe sound and streams flowing into it, Squamish river and its tributaries, English bay and Burrard inlet including the Indian river and tributaries, Serpentine and Nicomekl rivers, and the Fraser river, with its watershed tributaries, also the almost numberless inland lakes. Practically all of these streams and fresh-water lakes furnish valuable spawning areas for the various species of salmon, as well as many varieties of game fish.

The district is subdivided into several subdistricts which are patrolled by overseers, special guardians, and patrolmen. The subdistricts are as follows:—

Quesnel.—That territory covered by Lillooet district north of Clinton and part of Cariboo and including all lakes and streams west of the North Thompson river to meridian 125 and north to, and including, Blackwater river.

South Fort George.—That territory north of Blackwater river contained in Cariboo district, including Upper and Lower Nechako rivers and all the intervening streams extending north to and including Frank and Stuart lakes.

Vernon.—That portion of Yale district south and east of the junction of the Nicola and Thompson rivers, including the Okanagan lakes and all streams flowing into them; Osoyoos and Kettle rivers; Similkameen river and the Upper and Lower Nicola rivers.

Nelson.—That portion known as Kootenay and the Boundary country, including

Kootenay lake, Slocan lake, Upper and Lower Arrow lakes, and all the streams flowing into them, together with the Columbia river.

Kamloops.—That portion of Yale Electric district south and east of Ashcroft, and including Kamloops, Salmon arm, Shuswap, Seymour, and Adams lakes, Adams river, North and South Thompson rivers and tributaries.

Lower Fraser and Coast.—All that portion of the Fraser river and tributaries from Lytton to the coast, including the Harrison and Lillooet Lake system, Howe sound, and Squamish river, Burrard inlet and the strait of Georgia to the line of District No. 3.

The first five mentioned are supervised by overseers whose duties are to patrol the various streams and lakes in their respective districts frequently to enforce the regulations against netting and other illegal methods of fishing; also to enforce the provisions of the Act with regard to obstructions and pollution of streams, and regarding screens on irrigation ditches. During the year I visited all the overseers excepting the two most remote, Quesnel and South Fort George, and found the services performed by these officers quite satisfactory.

The lower portion of the district, as you are aware, has been under my direct supervision, and under my direction has been patrolled by the special guardians and patrolmen. There have been four launches regularly employed in enforcing the regulations, and I am pleased to say the interests of the fisheries have been well protected.

There were 2,781 commercial fishing licenses issued in the district this year.

In conclusion, I may say with regard to the protection of the spawning grounds for the future, I would strongly urge not only a strict enforcement of the regulations as they stand but also all possible curtailment of the capture of salmon by Indians above tidal limits, especially above Hell's Gate, as it would seem very undesirable, after these fish have escaped the nets and other fishing appliances below and have successfully negotiated the swift and difficult passages in the Fraser river on their way to the natural spawning grounds, that they should then be captured. It may yet be necessary for the Government to adopt a policy whereby the needs of these aborigines may be satisfied by a gift of something in lieu of the privilege of capturing salmon in the waters mentioned and allow as many as possible to pass up these streams unmolested.

Your obedient servant,

A. P. HALLADAY,
Assistant Inspector of Fisheries.

REPORT ON THE FISHERIES OF DISTRICT No. 2.

F. H. CUNNINGHAM, Esq.,
Chief Inspector of Fisheries,
New Westminster, B.C.

SIR,—I have the honour to enclose my annual statistical report on the fisheries of the northern coast of British Columbia (district No. 2) for the fiscal year ended March 31, 1916, including the salmon packs of the different divisions. These returns show an increase in the aggregate, the total value of fish and fish products for 1915-16 being $6,390,372, against $4,279,551 for 1914-15.

This increase is accounted for to a great extent by the large pack of canned salmon of all varieties, especially the coarser grades, and the higher prices obtained for same.

Sockeye salmon were plentiful all over the district, with the exception of Kimsquit, at the head of Dean channel, where the run was poor as usual. The climatic conditions were all that could be desired; in all my many years' experience I have never seen a finer or warmer summer, westerly winds prevailed, with just enough sea running to make good fishing. The herring run in the northerly portion of the district in the vicinity of Prince Rupert was later than usual, and much smaller quantities were captured than in former years. Herring caught were used exclusively for bait, with the exception of a minor quantity that were exported in 200-pound boxes, and a small portion used locally at Prince Rupert. Comparatively no attention was paid to the curing branches of this industry; possibly in the near future other markets may open up, but until then I see no encouragement for the development of this industry. Halibut have brought a good price and large quantities have been shipped from Prince Rupert in bond over the Grand Trunk Pacific in addition to that shipped to Canadian ports. It is interesting to note in this connection that substantial benefit to Prince Rupert is derived from American vessels calling there and selling their catches. Several hundred cars of American halibut (approximately 450), were shipped over the Grand Trunk railway during the year 1915, and nearly the same quantity of Canadian-caught halibut; these fish were captured by approximately forty-eight American vessels and fifty-eight Canadian vessels of various sizes, and landed at Prince Rupert. I consider the outlook most encouraging.

The total pack of salmon for season 1915-16 was as follows:—

	Cases.	Value.
1915-16	677,150	$4,740,050
1914-15	599,648	2,998,240
Increase	77,502	1,741,810

No new canneries or salteries were erected in the district during 1915-16. The two canneries on the Queen Charlotte Island did not operate; with these exceptions all canneries were in full operation.

SKEENA RIVER.

I am gratified at being able to report a record pack of salmon on the Skeena river. During the month of June, previous to the 20th, when sockeye fishing commences, large quantities of sockeye passed up the river to their spawning grounds, and quite a number were captured in the spring salmon nets, proving that there is an extensive early run of this variety. The pack would undoubtedly have been considerably augmented had operations been permitted by the fishery regulations, previous to June 20th. Owing to the beautiful weather, fishing operations were conducted to a considerable extent outside the mouth of the Skeena river, in Chatham sound.

The spring salmon fisheries show a decrease on the Skeena this season, owing to the fishermen paying more attention to the sockeye fishing, on account of the lower price paid for springs. This variety is generally mild cured, but on account of the markets being abroad canners were handicapped in making their sales.

The run of humpback salmon was almost phenomenal, the fish were larger and of good colour; in my opinion it was the best run of this variety we have had for many years.

Dog salmon and steelheads were in considerable quantities as usual. The department let a contract for the removal of a log-jam on the Oxstahl river, which will greatly facilitate the ascent of salmon to their spawning grounds.

I beg to enclose Overseer Norrie's report in which he touches on the spawning grounds of the Upper Skeena; he also refers to the halibut and herring fisheries around Prince Rupert.

RIVERS INLET.

The run of sockeye salmon was again excellent this season, over 30,000 cases more than last year, and nearly all were sockeye. The climatic conditions were all that could be desired, westerly winds and warm sunshine prevailing. Large quantities of salmon ascended the Wannock river to the spawning grounds, which as usual were densely populated.

Owing to the department's policy offering a bounty on hair seals and sea-lions, immense quantities of the latter were destroyed off Rivers inlet, around the Virgin rocks, and it was remarkable how few of these pests were in evidence on the fishing grounds. The fishermen were able to operate away out in the mouth of the inlet whereas before the sea-lions would follow the nets almost as far up the inlet as Wadhams cannery. I trust this bounty will be offered again by the department so that during the coming breeding season another big killing can be made of the marauders. Many cases of illegal fishing were reported by Overseer Saugstad, and prosecutions followed, in some cases severe penalties being meted out to the offenders. I trust this will be a lesson to those who offended.

NAAS RIVER.

The pack of sockeye salmon was phenomenal, being the largest pack on record, about ten thousand cases more than last year. This was attributable to the climatic conditions principally, and also to the facilities provided the salmon at Meziaden lake, by the Dominion Government enabling them to reach the extensive spawning grounds at the head of the lake.

The spring salmon run was also good, and there was an average run of humpback and dog salmon.

Overseer Adamson reports that there was comparatively little poaching by Indians on the Upper Naas, owing to the presence of our fishery guardians patrolling these waters.

The regulations were well observed on the Lower Naas, with very few prosecutions for illegal fishing.

With regard to the spawning grounds on Meziaden lake, I find that owing to the dry season and light snowfall, the salmon experienced great difficulty in reaching the lake, especially at the lower falls; after surmounting these, they found little trouble in ascending the fish ladder constructed by the department, at the upper or Big falls.

The *Gannet* did valuable work in conjunction with the *Linnet* in patrolling the Lower Naas and Portland inlet, also the outlying seining grounds; she patrolled these waters for three months, namely, June, July, and August. In former years Overseer Adamson found it very difficult to patrol the lower portion of Portland inlet on account of the *Linnet* being too small for these dangerous waters.

NORTH COAST AND QUEEN CHARLOTTE ISLANDS.

There is a noticeable decrease in the pack of salmon in this division, which is accounted for by the non-operation of the Queen Charlotte Island canneries, and also that I have included the Wales Island cannery (M. DesBrisay & Co.) in the Naas pack; my reason for this action is that the most of the Wales island salmon are caught on the Naas and in Portland Inlet, in fact all the sockeye are Naas river fish.

I regret to state that the Kimsquit sockeye fisheries were again a failure, and I can only account for it, by saying that in my opinion the waters are overfished, therefore some steps must be taken for greater protection, either longer close season or reduction in the number of boats.

The Central division, under the control of Capt. James Boyd is comprised of a very large area of water. There are four canneries located at different points in this division, Lowe inlet being the only cannery to put up a large pack of sockeye, the other three canneries pack mostly fall fish. I do not consider this a good sockeye division.

Overseer Boyd reports very few infringements of the fishery regulations. I enclose his report regarding the inspection of the spawning grounds.

Only one of the whaling stations operated in my district, namely, Naden harbour, the number of whales captured being ninety-two. There were a large number of hair seals and sea-lions killed in the district owing to the department appropriating a large sum of money to be paid in bounties. At Rivers inlet, as previously stated in another portion of this report, the killing off of a great number of these marauders proved very beneficial to the salmon fisheries.

The spring salmon fishing, by trolling around Masset and Langara island, was engaged in by about two hundred white men in addition to about fifty or sixty Indians, the whites using gasolene boats and the Indians mostly boats and canoes. Plenty of fish were caught, but the prices were low and delivery to the markets difficult, consequently the fishermen did not do very well financially. I refer you to my report dated August 28, 1915, for further details of the meeting I held with these fishermen at Prince Rupert and the result.

The department removed log-jams on the Bella Coola and Kimsquit rivers, thereby greatly facilitating the ascent of salmon to their spawning grounds.

On July 5, Mr. Found, Superintendent of Fisheries, Mr. Cunningham, Chief Inspector of Fisheries, and D. N. McIntyre, Deputy Commissioner of Fisheries, met me at Smiths inlet; they all came aboard the *Thomas Crosby,* and we visited and inspected all the different fishing areas and canneries on our way north, as far as the Alaska boundary.

Meetings were held at Prince Rupert with the fishermen and others, in connection with the salmon, halibut, and herring fisheries, and supposed grievances adjusted. Also meetings were held at Rivers inlet in connection with the salmon fisheries regarding the issue of independent salmon gill-net licenses.

After spending about two weeks in the district the officials returned on the chief inspector's launch *Fispa,* to New Westminster.

During the season bounty was paid by the department for the destruction of 2,680 sea-lions and 578 hair seals, in district No. 2, and considerable benefit was derived by the canners, fishermen, and the industry generally.

I am, sir, your obedient servant,

JOHN T. C. WILLIAMS,

Inspector of Fisheries.

NUMBER of various kinds of licenses issued in District No. 2, for the season 1915-16:—

	Total.
Salmon gill-net licenses	2,136
Salmon seine licenses	9
Salmon trap licenses	2
Salmon cannery licenses	35
Saltery licenses	1
Herring gill-net licenses	14
Herring seine licenses	14
Crab licenses	2
Abalone license	1
Clam license	1

J. T. C. Williams, Esq.,
Inspector of Fisheries,
Vancouver, B.C.

Sir,—I beg to submit the following report in connection with Prince Rupert Division of district No. 2.

The spawning beds of the Skeena river have been generally well stocked and seeded this season, and also the Indians living at the headwaters of this river, are well supplied with salmon for food purposes. W. J. Goodwin, who succeeded Harry Frank as guardian on beat No. 1, reports the usual number of salmon in the creeks and around Kitsumkalum lake. As you are aware, there has been considerable salmon poaching going on above the boundary and on this beat by the Indians, who have smoke-houses and fishing stations at most of the good eddies along the river. It is exceedingly difficult to handle this class of illegal fishing, and it would be advisable to have the regulations so amended that a fisheries officer can have more control over these people. The curing of salmon for food purposes should be confined to their fishing areas and smoke-houses, and any one caught crossing the fishing boundary conveying fresh fish in their boats should be liable to seizure and punishment; once around the canneries and collecting camps they can easily dispose of their catches. I trust that something has already been done towards this end.

Mr. Goodwin has, since his engagement with the department, enlisted in the 102nd battalion for overseas service.

The Indians on beat No. 2 have all the fish for food purposes that they require, and the spawning areas, which are somewhat limited on this beat, have had their usual complement of spawning fish. No infractions of the fisheries regulations occurred.

Guardian W. J. Mackendrick reports as follows upon the condition of the spawning grounds in beat No. 3 or Babine lake.

The salmon arrived about July 8 at Babine, and a few days later strong fish in fine condition were being caught at the Portage. Owing to heavy rains during July the creeks all kept very high and the fish remained in the lake a little later than usual, before ascending the creeks.

At Beaver creek and Grizzly creek at the extreme head of the lake, two creeks which last year had a very poor run, we had salmon in abundance arriving very early and spawning early. No eggs were gathered here for the hatchery as usual, and I consider conditions on these creeks above the average.

On Lakit and on Saugum creeks the run was fair, some eggs were gathered from both these creeks, and placed in the outdoor hatchery, at Anderson creek.

On Bradshaw creek or Anderson creek, the run of fish was good, a large number for half a mile on either side of the mouth and along the shallows in the lake, was very noticeable. Many of these fish, I think, spawned in the lake, and the same conditions could be seen at the mouth of all the creeks. From this particular creek nearly all the eggs for the Stewart Lake hatchery were gathered. In the upper end of this stream an open-air hatchery containing eggs from Lakit, Saugum, and Pierre or Twin creeks is being handled. On Pierre creek the run was heavy and early, and above average, all the spawning ground being well utilized. A scarcity of male fish on this creek was noticed.

In Wrights Bay creek we had noticed, before low water, a small run of fish, but as the creek goes dry early I doubt whether many eggs ever hatch out. On Tatche creek the run was also above the average, all the spawning ground right up to the lower falls being well covered. At the Hatchery creek the run was heavy, even better than last year, all large and strong fish, quite a large number of cohoe were noticed on this creek. On the lower river and on the lower lakes, the Indians had no trouble in getting their full catch, and as most of them have quantities of fish left over from last year, there is no chance of their supply running short this season. A very heavy run

of humpback salmon around the head of Babine river is noticeable, also a fair run of springs.

Owing to the scarcity of fish in Stewart Lake waters we had many Indians from Trembleur and from the villages at the upper end of Stewart lake, over here fishing this year; they confined their operations chiefly to the mouth of Beaver and Bradshaw creek; two nets were fishing at the mouth of Pierre creek for a short time.

I consider all the spawning grounds in this part of the district to have been well utilized, and on the next fourth year good results can be expected.

Referring to the development of our deep-sea fisheries of this division, I am sorry to report that there is little advance made on the preceding year; there is a decided lack of enterprise observable by our interests in this branch of the fisheries, probably due to the war.

The United States fishermen, however, quick to see and take advantage of opportunities which may occur are disposing of their catches here to the representative buyers of the big fishing interests in Seattle, and are saving the long journey south, and receiving as good a price for their catches as they would in their home port. Special fish trains have been common out of here this season, and there are always four or five express or fast freight cars attached to the regular passenger trains.

The benefit accruing to Prince Rupert through the foresight of the department making it possible for these United States bottoms to dispose of their catches here, is considerable. The Canadian Fish and Cold Storage Company had put up bait sufficient for their own vessels last season, and outsiders were accommodated also, but a great quantity of it was extremely poor, the fishermen claiming that it was half decayed when it was frozen, consequently when it thawed out it would not stay on the hooks. This bait question is a vital one with the deep-sea fisheries, on this coast, and appearances would suggest a very great shortage for the coming season.

The provisioning and supplies for these vessels are quite a consideration for the business houses in Prince Rupert, and as the fisherman, like the miner, is a good spender, they manage to leave considerable of their earnings ashore here.

The herring run up to the present has been a failure, not in this division alone but over the entire North, and Alaska. A considerable quantity of herring appeared some time ago, around Port Simpson, but have again disappeared into deep water. Less than five hundred tons have been collected and frozen so far. Taking everything into consideration this has been one of the most successful seasons recorded in the history of the fishing industry of this division of the district.

I am, sir, your obedient servant,

STEWART NORRIE,

Fishery Overseer.

J. T. C. WILLIAMS, Esq.,

Inspector of Fisheries,

Prince Rupert, B.C.

Sir,—The F. P. L. "Bonila" went into commission on the 1st of March, 1915. The month of March was spent overhauling and painting the vessel and getting her ready for the season's work.

During the months of April and May I patrolled the off shore waters frequented gy the fur seals on their way to the breeding grounds. As the price offered for seal skins was very low, the Indians did not go spearing them, and I did not see any boats hunting seals during those two months.

Thhe fur seals are increasing fast and I saw large numbers of them during the months of April and May.

I had also quite a number of hair seal and sea lion noses brought to me by Indians and white men for the bounty paid by the Department. This district has always been infested by sea lions, and there is no doubt that they do considerable damage when the salmon are running. There are thousands of them in this vicinity yet, and to make the benefit permanent these pests will have to be totally exterminated.

The canneries in this district put up fair packs, the sockeye pack was a little better than usual. This was not due to a bigger run of fish, but to the fact that the streams leading to the spawning grounds were dry, and therefore the fishermen caught practically every fish that came along. The humpbacks fared the same, and most of the fish that the fishermen missed, died at the mouth of the streams before the rains came to allow them to proceed to the spawning grounds. The run of humpback was light compared to some years.

There were large quantities of dog-salmon around the streams, but very few were packed in this district. Large numbers of these fish were caught in the seines while fishing for humpback, and they were left to rot on the beach by some of the canners. Judging from conditions here this season, there will be a very poor run of all varieties of salmon four years hence.

The F. P. L. "Bonila" covered about 10,000 sea miles during the season of 1915. I saw no cases of illegal fishing during the season. Of course the fish could not get up the streams, and therefore there was no chance of them escaping.

I also visited the different streams in this district and examined them for barricades, but found none.

The Indians have almost given up erecting permanent barricades and all I have seen is the old locations of such barricades. They use a piece of net across the rivers if not closely watched, but the cannery managers have co-operated with me regarding this method of fishing, and have taken all the short pieces of net away from the Indians.

Some of the canners have allowed the Indians the use of a seine for a few days to enable them to obtain their winter supply of fish, and they catch them in salt water, which does away with fishing the streams, and erecting barricades to secure the supply of fish.

I am, sir, your obedient servant,

JAMES BOYD,
Fishery Overseer.

REPORT ON THE FISHERIES OF DISTRICT No. 3.

To the Chief Inspector of Fisheries,
New Westminster, B.C.

SIR,—I have the honour to submit my annual statistical report for Vancouver island and the adjacent mainland, district No. 3 of the province of British Columbia, for the fiscal year ended March 31, 1916, including statement of the fur seals taken in this portion of the province.

In reviewing the activities of the past year in the various branches of the fishing industry, it is found that on the whole they have been very satisfactory, notwithstanding the adverse weather conditions which prevailed during the latter half of the year.

Salmon.—The returns show a decrease from the catch of the previous year, the total catch being 325,108 hundredweights as compared with 365,528 hundredweights taken in 1914-15, but although the catch was less the marketed value of the salmon taken was about equal to that of the year previous.

The decrease was in the amount of salmon canned, this being attributed especially to the reduced number of cases put up in the Barclay Sound and Alert Bay districts. In both these districts in 1914 a large number of humpback salmon were canned, but the season just closed was the off year for these salmon.

In the southern part of the district, owing to the high prices offered for the fall run of salmon, the greater part of the catch was exported to the United States in a fresh condition. It is gratifying, however, to know that in future provision will be made to put up here all the salmon taken in this district, as new canneries are being erected at various points and are so situated that the salmon will only need to be taken a short distance before being canned, thus ensuring a first-class product. The new canneries are to be erected at the following places: Sidney, situated near the south end of Vancouver island on the east coast; north end of Lasqueti island; Pender harbour, on the mainland coast.

The cannery at Nanaimo is being enlarged and will be up to date in every way. The Quathiaski Canning Company are also erecting a new cannery at Blind channel, as they found their present cannery at Quathiaski cove inadequate to handle the run of salmon in that district, the distance to convey their fish from some of the outlying fishing areas to this cannery being too great. Developments are also under contemplation at Nootka and Nitinat Arm, west coast of Vancouver island. Canneries are also to be erected at these points.

A very small quantity of dry-salted salmon was shipped to the Orient during the past season, this being largely attributed, as above noted, to the great demand for the fall run of fish and the high prices paid by buyers from the state of Washington. In this connection it might be interesting to note that, according to the statement of a prominent exporter of salted salmon, to-day fifty-five dog salmon can be packed in the box which fifteen years ago would only contain forty of these fish.

Cod.—The cod fisheries show a very satisfactory increase, the catch during the past season being the largest recorded, 355 hundredweights above the catch of 1914-15, which was an exceptionally good year. The prices procured this year were also in advance of those of the previous season. The demand for cod is steadily growing, filleted cod especially proving a very attractive seller. I regret that no steps have yet been taken for the proper conservation of the cod, and would again strongly urge that a close season be arranged to go into effect from the middle of January to the end of February, which is the spawning season. As greater interest is being taken in the preparation of our cod for the market, the outlook for this branch of our fisheries has every prospect of rapid development.

Herring.—The herring catch did not come up to that of the previous year, but the demand was good, and the prices in advance of any previous year. The activities of the herring industry are centered at Nanaimo, Pender harbour, and Uchucklesit harbour on the west coast of Vancouver island.

Nanaimo continues to hold the premier position in the herring fisheries of district No. 3, and although a smaller number of seines were operated in the vicinity of this city than ever before, the catch will compare most favourably with any previous year, when a much larger number of seines were operated, the average catch per seine being a record one. The herring near the close of the season came into Departure bay in greater numbers than for many years.

At Pender harbour the herring fisheries received a great impetus during the past season. Three companies were engaged in putting up herring. One of these companies employed a number of Scotch girls under the management of a Scotch fish curer, and put up the herring using the Scotch curing method. The failure of the

herring fishing at point Grey caused an influx of gill-net fishermen from that point to Pender harbour, the conditions for gill-netting being very favourable in this locality, as also the shipping facilities, and the fishermen were able to forward their catches to the markets with very little delay, but unfortunately, owing to the fishing areas in this harbour being very limited, consisting practically of narrow channels, the place was overcrowded, which resulted in considerable friction among the fishermen. It will be necessary in future to avoid overcrowding, and the possible danger of overfishing, as this would result in driving the herring from this locality. Some method must be adopted to regulate the fisheries at this place.

The chief indication of a satisfactory development in the fisheries is the increasing attention given to exploiting other branches as well as the salmon. This is particularly the case in the enterprise exhibited by the Wallace Fisheries, Limited, in the operation of their extensive plant near Alberni. During the past season this company has paid particular attention to the canning of herring, putting them up in tomato sauce, fresh, and kippers. As this is an entirely new departure, their efforts will be watched with great interest. A new enterprise of this kind is confronted with many difficulties, especially under conditions which are at present unusual and world-wide: markets must be obtained, and risks involved; and the prices at the outset are likely to be small and uncertain; so that in view of what a great advantage it would mean to this province, such enterprise should be consistently encouraged. When markets have once been established, success is assured.

Halibut.—The returns from the halibut fisheries show very satisfactory results when compared with those of the previous season, and would have been still more satisfactory had it not been for the unusually stormy weather which continued during the latter months of the year. The bulk of the halibut taken was brought to Victoria during the spring and summer months.

Oulachans.—There was a splendid run of oulachans in the northern part of the district this year, especially on the mainland coast, and the catch was in advance of that of previous years.

Whales.—Only one whaling station was operated in this district during the past season, the station situated at Kyuquot on the west coast of Vancouver island. The number of whales taken was 137, comprising 55 humpback, 68 finback, 12 sulphur-bottom, 1 bottlenose, and 1 sperm. In previous years two stations were operated on the west coast of Vancouver island, the other one being situated at Sechart, Barclay sound. The company owning and operating these stations is making greater preparations for the coming season, and no doubt this industry will be more vigorously exploited than it was during the season just closed.

Fur Seals.—Fur seal hunting by the Indians along the west coast of Vancouver island was very successful last year, the number captured being nearly double that of the year previous. It appears that the seals are frequenting the waters along the west coast in greater numbers than usual, and although the Indians, being compelled to use primitive methods in the capture of the fur seal, are handicapped in their operations, yet the high prices which the furs command in the market is always a great inducement. The Indians are to be commended for their faithful observance of the regulations governing the capture of fur seals, as no doubt there will be a great temptation to use firearms, as was done before the present restriction was placed on fur seal hunting. Mr. John Grice, the fishery overseer, in whose district most of the seals are taken, reports very favourably on the conduct of the Indians in their seal-hunting expeditions. In this connection I might also state that the Indians received the greater part of the bounty which was paid last year for the destruction of hair seals and sea-lions. The policy of the department in encouraging the destruction of the hair seal and sea-lion is receiving the highest commendation from all those who have the interest of the fisheries of this province at heart, as these animals have proved very destructive.

The dogfish is another, and considered by many, even a more serious menace to the fisheries than the hair seal and sea-lion, as they not only destroy valuable food fish, but work havoc with the fishermens' nets. These fish have evidently become more numerous during the last three or four years, which no doubt is largely owing to the fact that they are not being taken as formerly for the oil which they produced, dogfish oil being largely displaced in connection with local industries, by the use of other oils and by calcium carbide, for lighting purposes. The taking of dogfish in such large numbers in former years for this purpose proved a considerable check. If some method were devised whereby these fish would become of commercial value, it would not only open up a new fishing industry, but would at the same time remove a serious hindrance to the fishermen engaged in other branches of the fisheries.

Obstructions.—During the past year very satisfactory work was done in the removal of rock from the Nanaimo River canyon, permitting the salmon to ascend to the upper spawning beds in the river. The removal of a large portion of the old paper-mill dam on the Somass river near Alberni is another piece of work satisfactorily accomplished. The salmon are now able to ascend this river with very little difficulty into the spawning areas in Sproat lake. Fishery Overseer Mr. J. B. Wood reports in this connection that these spawning areas were well stocked with ova, as a very heavy run of salmon ascended into the lake. Good work was also done at Stamp River falls to make the ascent at this point easier for the salmon which make for the upper reaches of this river and Great Central lake, yet the past season has proved that before conditions at this point are entirely satisfactory, it will be necessary to remove more rock from the lower part of the fishway. This matter should receive early attention. A fish ladder was also installed on the Kis-suck-sus Creek dam. This stream enters the Somass river at Alberni.

The falls on a stream flowing out of Tom Brown lake in the Knight Inlet district have also been improved during the past season. There is a run of sockeye salmon to this lake, and the spawning areas there are fairly extensive. The removal of obstructions in sockeye streams is very important, and there is no doubt that the results will justify whatever expenditure was made in this direction.

In concluding this report, it gives me great pleasure to commend the efficient work performed by the overseers in their various districts. Although there were more convictions for infractions of the fishery regulations than in the previous year, yet when the extensive fishing area to be patrolled is considered, and also the increased number of fishermen of various nationalities, it will be readily seen that the fishery officers have been both alert and active in the discharge of their duties.

I am, sir, your obedient servant,

EDWARD G. TAYLOR,
Inspector of Fisheries.

REPORT OF THE DEPARTMENT'S RESIDENT ENGINEER.

F. H. Cunningham, Esq.,
Chief Inspector of Fisheries,
New Westminster, B.C.

Sir,—I have the honour to submit the following report having reference to the work performed by this department under my supervision during the fiscal year 1915-16. My report for the previous year was practically confined to operations on the Fraser river at Hell's Gate, which occupied the whole of my time during this period. While this work was in progress, work in other portions of the province accumulated, consequently, at the commencement of the fiscal year under report, it became necessary to select the more important cases and deal with them in succession, as appeared most

necessary. Now that one complete year has been devoted to this work throughout the province, both from a remedial and a development standpoint, it is possible to arrange such work under the following headings:—

(1) The inspection and consideration of streams once easily negotiated by salmon, which, either through natural causes or because of the operations of railway construction or logging contractors have been thereby rendered more difficult of ascent, and, as in some cases, almost absolutely impassable.

(2) The inspection and consideration of streams which have never been known to contain salmon, but which are reputed to drain areas which should, if it be possible to make them accessible, become valuable spawning grounds. Such streams are usually obstructed near the mouth by natural falls of varying height, which have hitherto been a barrier to the passage of salmon.

(3) The inspection and consideration of streams draining areas containing vast timber limits, which represent great capital interest to their owners. In order to develop these timber resources it is necessary at times to build dams on the streams which flow through them, for the purpose of either furnishing power for operation or for rendering transportation less difficult. Under this heading, also, may be included streams on which dams have already been constructed and provided with fishways, which, either through neglect or faulty construction, fail to serve the purpose for which they were intended. Examinations in connection with such streams have been made with a view to advising: (*a*) whether fishways are necessary (that is, whether they are, are not, or are ever likely to be inhabited by salmon or other fish); and (*b*) the nature, size, location, and method of construction of fishways, which in order that the streams should not become depleted of fish life, it is considered necessary to construct.

(4) General engineering details in connection with the various hatcheries operated by the department throughout this province, including buildings, dams, water supply, the construction of rearing ponds, and in cases where development of the country is proceeding, as for instance, the incoming of railroads, the due consideration which such development requires.

(5) Under heading No. 5 may be included cases not directly dealt with under any of the preceding paragraphs, and including such work as the details required in the consideration of the conservation of the supply of bass in Christina lake, and any other general requirement for information in connection with the run of salmon or other fish in the streams in the province.

Under the first heading the following streams or places in the various parts of the province were inspected and reported upon during the year: Lardo river, Hoestall river, Mink Trap bay, Somass river, Nanaimo river, Fountain creek, Tom Brown lake, Stamp River falls, the Fraser river at Hell's Gate, and Bridge river.

(*a*) Lardo river, which drains Lardo lake, at the lower end of which is located the Gerrard hatchery, is very seriously obstructed throughout its course by log-jams of varying size, one of which extends over an estimated area of two and one-half acres. This river is particularly remarkable for its very high freshets, which at times raise the river and lake to an elevation of 10 feet above normal. Logging operations have for many years been carried on in the lake, and one bank of the river, which is of rocky formation, is traversed by a branch line of the Canadian Pacific railway. During the construction of this railway, probably fourteen or fifteen years ago, much rock was undoubtedly carelessly cast into the river. Such waste rock, projecting above the surface of the river in various places, would catch and hold logs drifting down the river from the logging operations being conducted on the lake above. This was undoubtedly the cause of the origin of the jams which now exist, tremendous quantities of logs coming down the river during the freshet and lodging in the places mentioned. At several points the original bed of the creek is piled high with rock and logs, and portions of the low-lying country on the opposite side of the river have been

washed out to form a new bed, leaving giant trees standing now in the midst of the stream. The timber forming these jams is mostly large cedar of good quality, which might, under favourable circumstances, be worked into merchantable lumber, and sold. Such an arrangement, if some person could be induced to take a portable mill into the district, would undoubtedly be the best method of dealing with this condition, which is one which must eventually be considered and dealt with. The Kamloops trout, which are indigenous to this stream, are certainly seriously handicapped in their efforts to reach Lardo lake, through the presence of these jams, and the officer in charge of the Gerrard hatchery was instructed to deal with the most difficult places to obtain temporary relief as required.

(*b*) Hoestall river, which was visited in the fall of 1915, was found to be obstructed with logs, though not to a very serious extent, and after reports and photographs on same had been submitted to Ottawa, a contract was awarded at a very reasonable price for its removal. This place is very inaccessible except during the high tides at certain portions of the year, and at the time of writing no report has been received upon the progress of this work.

(*c*) Mink Trap bay was also visited during the fall of 1915. The obstruction here also consists of a log jam which has undoubtedly been collecting for several years, completely blocking the stream which drains Mink Trap Bay lake, and causing the ascent of salmon to be rendered a very difficult accomplishment. In connection with the removal of this obstruction it was considered necessary to make inquiries regarding the catches of salmon in this district during the past few seasons. An examination of the spawning grounds on this creek showed them to be of very limited extent, and recommendation was made that in view of all these facts it was not advisable for the department to proceed with this work for the time being. In connection with the obstruction at Mink Trap bay a point has been raised which may in the future have considerable bearing upon the action of the department in similar matters. In a creek such as this, which, to all intents and purposes, appears to have been closed to the entrance of salmon for several years, the natural inference is, of course, that it has become depleted entirely of salmon life. Under such circumstances, then, salmon which are observed below the obstruction where the stream enters salt water may only be drifting fish heading for some other stream. If such a theory proves to be correct, then the remedial work necessary will be of a twofold nature: (*a*) the removal of the obstruction, and (*b*) the restocking of the spawning beds. Much detail in connection with this theory can, and should, be obtained by the fishery overseers when on their work of inspection during the spawning season. It is necessary that in order properly to deal with this very important work of the removal of obstructions to the ascent of fish in the streams throughout the province, a careful examination of the spawning beds in connection therewith should be made in every case during the spawning season. All such data collected would be valuable to the department in determining whether the expense involved in the removal of any such obstructions would be commensurate with the possibility of return therefrom, and in order that the department, in its desire that the development work in connection with the salmon fishing industry may be brought to a successful issue, shall have full and necessary information at hand, so that each individual case can be dealt with in a proper manner.

(*d*) Somass river: For twenty years this river has been obstructed by a dam placed across it for the purpose of furnishing power to a pulp mill on its bank. During the last few years this mill has fallen into disuse and that portion of the dam adjoining the mill has either fallen away or been removed. The gap thus formed, however, was so small as to cause such great contraction to the stream flowing through that the salmon were unable to ascend freely. After inspection it was decided to remove sufficient of the remaining portion of the dam to give an unobstructed width of between seventy-five and eighty feet to the river, and a contract was awarded for the performance of this work, which was completed in a satisfactory manner, the fishery guardian

in this district reporting that " the salmon are now able to ascend this river with very little difficulty into the spawning areas in Sproat lake."

(*e*) Nanaimo River: An inspection was made of the Nanaimo river where it was reported that a rock obstruction was the cause of the pools below being stocked with salmon and trout which were delayed on their way up stream. This river shows a very peculiar geological formation in this portion of its course. It flows through a canyon, the lower strata of whose walls consists of a very soft shale rock, which through the ages has been subjected to erosion, and has caused the collapse of the harder upper strata, in the form of huge boulders, into the river-bed. One of these boulders, measuring approximately one hundred cubic yards, was the cause of the trouble reported, and it was considered that the removal of this rock would render the passage of salmon and trout comparatively easy. A contract for this work was awarded and completed satisfactorily. The overseer's report for the district stated " that the work done permitted the salmon to ascend to the upper spawning beds of the river."

(*f*) Fountain creek: It was reported by Guardian Webster that this creek had become obstructed by the contractors at work on the construction of the Pacific Great Eastern railway, and had become impassable to the trout. An examination of this complaint showed that the contractors had obstructed this creek by the construction of a dam clear across it for the purpose of furnishing power for a saw-mill operating to provide lumber for the railroad construction. It was further seen that the careless falling and trimming of trees had caused trunks and tops to lie lodged in the creek bed, a fact which in the future, owing to further accumulation, will very likely cause, in addition to the obstruction of fish, the changing of the creek channel, and the erosion and spoliation of settlers' farm lands. The dam was removed from the river by the railway contractors on the department's request, and the question of the danger of stream channel change and erosion was submitted to the provincial authorities for consideration.

(*g*) Tom Brown lake is drained by Tom Brown creek into Knight inlet at Glendale cove. The creek and lake have been mentioned in a former report by Captain Crichton, who stated that the creek, while not being obstructed either through logging or railroad operations, appeared to present difficulty to ascending fish at low water at a certain point. It was suggested that by the construction of a wing-dam, which would concentrate the flow of water by this particular point, the condition would be remedied, and Messrs. Bell-Irving and Company were authorized to proceed with the performance of same at a fixed price. An inspection of the work, made by myself in November of 1915, showed that the work had not been completed. It will, however, in all likelihood be finished in time to render the necessary assistance to the salmon during the present year's run.

(*h*) Stamp River falls: Considerable work in connection with the construction of an easement of channel at Stamp River falls was performed several years ago, with results which appear to have been fairly satisfactory. In most cases, however, where such work has been performed in the past, later observations have shown that still a certain amount of work appears necessary in order to render complete the ideas with which the work was first approached. At Stamp River falls the fishway, as constructed, appears to be very efficient. Immediately below it, however, is an abrupt fall in the river which, at certain times, is impassable, and can only be rendered passable on these occasions by the excavation of a lower fishway at this particular point. Estimates have not yet been prepared which would show what such work might be expected to cost. I expect, however, during the coming year at the time the salmon are running heavily in this river to make a closer inspection and survey on which cost can be based.

(*i*) Fraser river at Hell's Gate: During the course of the year many inspections and reports have been made and prepared, showing the condition of the Fraser river at Hell's Gate since the work here was completed one year ago. Observations made

by the special fishery guardian at this point during the run of 1915 showed undoubtedly that the work was successfully performed. Personally, however, I am not assured that salmon can pass as freely up the river as they did prior to the time when railroad construction on the Canadian Northern railway was commenced. Up to this time no difficulties had been experienced on the Fraser river, and in consequence it was never considered necessary in the interests of conservation to keep close watch on the movement of salmon through the canyon. In view, however, of the troubles which have since occurred, it often appears to me regrettable that some data concerning the flow of the river at Hell's Gate, and the action of the salmon in passing through before the trouble occurred should never have been obtained. Had such information been available a comparison of the conditions of to-day with those of the past would have shown just how the run to-day is affected. At certain stages of the water, salmon are now undoubtedly delayed in their passage up the river. That they get through eventually, however, is certain, but whether the greater delay and the greater physical exertion which is now undoubtedly required to get through has any effect upon the parent salmon, only the future can tell. Under these circumstances, then, only constant inspection and close observation of the salmon when passing through this place, together with the results which appear in the spawning grounds above, can decide for us the measure of success of this work. The difficulties of such observation are very great, and the amount of time required to really properly continue the study of this new condition would, if properly given, prohibit absolutely the consideration of other matters. The only possibility, therefore, in connection with this place is in the employment of an intelligent guardian who can, and will, work with certain ideas with a view to furnishing accurate information regarding the passage of salmon at various stages of the river. In a recent report I have suggested that it may be yet necessary to do further work here. Such work, however, should not be performed until the data collected are sufficiently great to warrant the laying down of a further scheme of improvement. Suggestions should then be submitted to a board of engineers for consideration and approval or amendment, and then dealt with in the speediest manner possible. I personally expect to pay great attention to this place during the time of the run, and hope to be able to submit, at a later date, for consideration such a scheme.

2. Under the second heading the following streams in the various parts of the province were inspected and reported upon during the year: Tatche creek and Ellerslie channel.

(*a*) Tatche creek drains into Babine lake from the north, and according to reports received from the guardians in this district, drains a big area which, could it be opened up satisfactorily would be of inestimable benefit to the run of salmon in northern waters. The obstruction reported consists of a double fall having a height of approximately seventy-two feet. These falls are located in the river approximately three and one-half miles above its entrance into Babine lake. Throughout this whole distance the bed of the creek, having an average width of from fifty to seventy-five feet, is all ideal spawning ground. The upper waters were not inspected during this visit, with the exception of the lake immediately above the falls, which may be described as a swampy lake, and not one which salmon would naturally frequent. I learned, however, that the spawning grounds reported upon exist in the upper portions of the river in a country very difficult of access. Sufficient measurements were taken at the falls to show their height and width and the length which would be required for a suitable fishway to be installed, should conditions be considered favourable. After due consideration the department expressed itself as being of the opinion that work of this nature should not be considered at all seriously until full details were obtained regarding the extent to which the spawning ground at present available was used. This referred, of course, to the spawning grounds in the creek bed three and one-half miles in extent, and embracing an area of approximately at least twenty acres. It would be worse than futile and a waste of money to attempt to develop at very great expense

the upper waters before it could be satisfactorily proved that the lower waters were overstocked. Other reports in connection with this work have shown that at times the salmon gather in enormous numbers at the base of these falls, vainly endeavouring to ascend. Further observation, however, shows that later, probably after realizing that the falls are inaccessible, the salmon fall back and spawn on the natural spawning beds below. It is my opinion that it should not always be taken for granted that because under certain conditions salmon are seen endeavouring to ascend over inaccessible places that if the inaccessibility is removed and a free and easy channel provided, they will naturally ascend beyond such a point. If such were to occur, the theory of the parent salmon returning (as far as possible) to its own birthplace to spawn would be rendered somewhat in doubt, and I feel satisfied that under such circumstances newly opened-up spawning grounds would have to be artificially seeded before an adequate return would appear for the expenditure involved. Bearing in mind the fact that at the present time so many creeks, which at one time were heavily stocked with salmon are at present absolutely barren, my report stated that: "I was of the opinion that expenditure made to restore natural salmon spawning grounds to their original fecundity is of a far more economical and logical nature than that of expenditure made to develop new areas, even though the actual amount of money spent be greater." I feel strongly, the more I see of general conditions, and the more I realize the amount of development work at present under consideration by this department, that all due safeguards should be taken in order that all money spent should perform the maximum of benefit. In view of my report upon this creek, it was considered by the department on account of the large expense involved and the doubt concerning the successful ascent of fish, should such fishway be constructed, that for the present at least no further action should be taken in the matter, but that the guardian in that district should be instructed to pay very close attention to the salmon in Tatche creek below the falls at spawning time, in an endeavour to prove that the river was overstocked, that more eggs than necessary were going to waste, and that it was to the interests of the fisheries in general that the work should be performed.

(*b*) Ellerslie Channel: The contract awarded some time ago for the construction of two fishways at the head of Ellerslie channel has not yet been completed. I made an inspection of this place in the fall of 1915, and was pleased to see that the treatment afforded Kiltick creek was very successful. I saw myself that the river above the fishway was very heavily stocked with spawning salmon, and I felt satisfied with the work that had been performed. With regard, however, to the larger fishway, the contractors have experienced considerable trouble. As explained in former reports, this place is very inaccessible, and the contract for this work was awarded to the only people that I know, living in that district, who were able at all to consider doing the work. The Strom Brothers, to whom the contract was awarded, reside in the vicinity of East Bella Bella, which is probably thirty miles at least from the head of Ellerslie channel. They are settlers endeavouring to clear a pre-emption in the woods, who are willing to take such outside work as this contract as a means of providing the livelihood during their development work. It is quite possible that their lack of funds has been responsible for much of the delay in connection with this work. An extension has been granted until June, 1916, and should the work not be completed by that time I fear the department itself will have to finish it. It is difficult to state in a report the difficulties under which people on this west coast labour when doing work of this nature, and these difficulties will have to be considered in the future when similar work is being done. The cost of transportation is heavy, and the amount of lost time on the delivery of material is also a serious factor, particularly when such places as a rule lie at some distance away from the regular steamer route. All the material used in the work at Ellerslie channel was carried up from Bella Bella, a distance of 30 miles, in an open gasoline boat. Weather conditions have at times been unfavourable, and during periods of high water there have been times when no work could be done for

several weeks at a time. I have, however, blamed the contractors very much for neglecting to embrace the opportunity presented by the unique condition of low water which was experienced last year. It may be necessary in the future, when letting a contract of this nature, to consider the financial standing of those tendering on and receiving contracts.

3. Under the third heading the following streams in the province were inspected and reported upon during the year: Indian river, Village bay, and Nimpkish river.

(*a*) At Indian river a company has been formed for the purpose of furnishing power for certain industries on the North Arm of Burrard inlet, and the necessary arrangements with regard to water having been made with the Provincial Government, the matter was referred to this department requesting that an opinion be given upon the question of the effect upon fish life that the construction of a dam on this river would entail. The site was visited and after examination it was found that the river at the point where it is expected that the dam will be built was very rapid and obstructed by natural falls, and careful inquiry failed to show that at any time this portion of the river had been inhabited by fish. A report was accordingly prepared and forwarded to the Comptroller of Water Rights at Victoria, through the Provincial Fisheries Office, stating these facts.

(*b*) Village Bay: At Village bay, on Valdes island, it was reported that an old and, at the time, unused dam situated in the creek draining into this bay, obstructed the passage of salmon. It was also later shown that besides the dam there was quite an extensive log jam in the same creek, which also served to hinder the passage of salmon. After a close inspection was made of this stream a contract was arranged with a resident of the district to remove these obstructions. The work, however, was never performed. Vast undeveloped areas of timber exist in the upper reaches of this waterway, and, about the time it was expected work would be commenced on the removal of these obstructions, application was made to the Provincial Government by the owners of the timber limits for permission to construct a dam 30 feet high on the creek, and below the obstructions complained about. On receipt of assurance from the logging interests that a suitable fishway would be constructed in this proposed dam this permission was granted, and realizing that when the dam was completed and the water backed up behind it that the original obstructions would either float to the surface or become submerged, and therefore cease to be an obstruction, arrangements were completed whereby the contract agreement was cancelled. I inspected this creek during the salmon run of the year 1915 and found a large number of dog salmon at the mouth. The dam at the time was practically completed, though construction of log-chute and fishway had not been commenced. It was with the idea of advising upon the location and design of the fishway, which it was intended to install, that I was instructed to visit the ground. The necessary details were considered and the company's engineer was instructed to prepare plans suitable to this department to be submitted before actual construction commenced. It is expected that the fishway will be completed in time to accommodate the run of the year 1916.

Reports from the fishery overseers on the coast for the year 1915-16 draw attention to the low water experienced in many of the creeks during this season. Fishery Overseer Boyd states "that the fishermen in his district caught practically every fish that came along, and those which were missed died at the mouths of the streams before they were sufficiently swollen to allow the fish to proceed to the spawning grounds." This statement of Overseer Boyd's I can confirm from my own actual observation at Village Bay creek, where it was quite possible to realize how impassable the river was for fish with the low condition of the water at that time.

(*c*) Nimpkish River: The Nimpkish river, at the north end of Vancouver island, on which it is proposed to construct a dam 80 feet high for the purpose of developing the lumber interests in this valley was also reported upon. This is a case where two valuable interests conflict. The Nimpkish river is probably one of the most valuable

small salmon streams in British Columbia. The timber interests are likewise of tremendous value, and it has been suggested that development of both cannot be properly made without injury to one. Application has, I understand, been made to the Provincial Government for permission to build this 80-foot structure on the Nimpkish river. The lumber company has associated with it American engineers who have the reputation of being most expert in the construction of fishways, and who are willing practically to guarantee that they can construct a fishway in this dam which will successfully pass all the salmon using the stream. Should this dam ever be built it will be very interesting for this department to have observations made during the construction and maintenance thereof, and very much valuable data regarding the lifting of salmon over such an extraordinary height will be of great use in the future.

Under the fourth heading the following hatcheries in the province were visited at different times during the year: Queen's Park hatchery (transferred from Bon Accord hatchery), Cowichan Lake, Gerrard, Stuart Lake, Babine Lake and the hatchery operated by the Provincial Government at Cayuse creek.

(*a*) The transfer of the Bon Accord hatchery from Port Mann to Queen's park necessitated a readjustment of the water supply to the Fisheries building in Queen's park, which, under the new arrangement was to become the main hatchery building. New feed pipes were laid, and separate pipe supplies furnished to each trough in the new hatchery building. It was considered better practice, in view of the fact that this water is furnished from the city domestic supply, to deliver the water to the troughs in the hatchery through pipes rather than by the aid of the usual head tank, which, when using city water, would be very wasteful. Rearing ponds in the natural earth were also constructed in connection with this hatchery, necessitating the tapping of a reservoir waste main and the laying of feed pipes to the various ponds. This work was completed towards the close of the year and has since given very great satisfaction, besides being an exhibit of great public interest.

(*b*) Cowichan Lake: Several visits were also made to Cowichan lake throughout the year in connection also with the construction of rearing ponds at this hatchery. Owing to the peculiar nature of the ground at Cowichan lake, rearing ponds, which have in the past been experimented with in the natural earth, have not proved successful, and the new ponds were constructed of lumber. These have likewise since given very great satisfaction and are of great interest to the public. It might be stated here that the dam at the Cowichan Lake hatchery water supply is in very great need of repair which may, on examination during the present year's low water, mean practically a rebuilding of same. The 6-inch water main, which furnishes the supply, is likewise in a very bad state of repair, much head being lost through the many leaks which are evident through the wet condition of the surrounding ground. For the time being, of course, in order to avoid heavy expense this work can be patched up temporarily, but it will be necessary as before stated before very long to consider definitely the question of reconstruction here.

(*c*) Gerrard Hatchery: The Gerrard trout hatchery was visited during the early portion of the year for the purpose of firstly considering the conditions of obstructions in the Lardo river, and secondly, for the purpose of taking up the question of keeping the stream (Twin creek) pure for hatchery purposes by considering the best method to be adopted in order that mining operations being conducted in the upper waters of the creek could continue without harm to the water supply of the hatchery. This question was satisfactorily solved, and a survey made showing the layout of the water connections from creek to hatchery for the purpose of filing with the Comptroller of Water Rights, Victoria, in compliance with the Water Act.

(*d*) Stuart Lake: During the late summer Stuart lake and (*e*) Babine Lake hatcheries were visited. It having been decided to abandon the present Stuart Lake hatchery, I was instructed to proceed to Bradshaw creek, a stream draining into Babine lake 15 miles from its south end, with a view to laying out the site for a new

hatchery which it was proposed to build here, and which was reported to be an excellent site in every way. On reaching the grounds, however, and making the necessary survey with the idea of obtaining cost data, it was found that only at great expense could water be delivered to such hatchery, though the site for the same is ideal from every point of view. The department has at the present time under consideration a suggestion for doubling the capacity of the Babine Lake hatchery. Such an arrangement would, I feel sure, prove very satisfactory.

In connection with the hatchery at Kennedy lake, the construction of a dwelling for the use of the officer in charge was authorized. Plans and estimates for this dwelling were prepared and approved, and construction has since been completed. The construction work was performed under the immediate supervision of the officer in charge, and in view of the extremely heavy cost of transporting material to this place the cost of building this dwelling must be considered very satisfactory.

(*f*) The visit to the provincial hatchery on Cayuse creek was made in connection with the work of inspection on the Fraser river, embracing Hell's Gate and Bridge river. I was pleased to find at all the hatcheries visited that the officers in charge betrayed the greatest interest in their work, and the buildings and grounds are a credit to the service they represent.

5. With regard to heading No. 5, only one place can be considered for special notice. I refer to Christina lake and Christina creek, in which bass, placed some thirteen or fourteen years ago by the department, have flourished to such an extent that this place is a paradise for black bass fishermen. Owing to representations being made by "Fish and Game Club" with headquarters at Grand Forks, it was considered necessary to visit this place with the idea of furnishing some arrangement whereby the fish would not be permitted to leave the lake by Christina creek, and so pass through the Kettle river and from thence into United States' territory. Plans were prepared and submitted to the department at Ottawa of a screen for this purpose, which to date has not been constructed. I am satisfied, however, that when such construction work is done the bass will be conserved to Christina lake.

In conclusion I have to thank all the members of the Outside Service in this province for the consideration which has been shown me as I have passed amongst them. The fishery inspectors, the captains of patrol boats, the officers in charge of hatcheries, and the fishery overseers have all been willing to submit themselves to inconvenience in order that I might be assisted in my work. During the year I have covered a tremendous area of this province, and even though the actual work performed under contract possibly seems small, yet the experience that I have thereby gained will be, I hope, of great value to the department in future years as the work of development and conservation proceeds.

I have the honour to be, sir,
Your obedient servant,

J. McHUGH,
Resident Engineer.

GENERAL REPORT ON EXPLORATION WORK, 1914-15-16.

F. H. Cunningham, Esq.,

Chief Inspector of Fisheries.

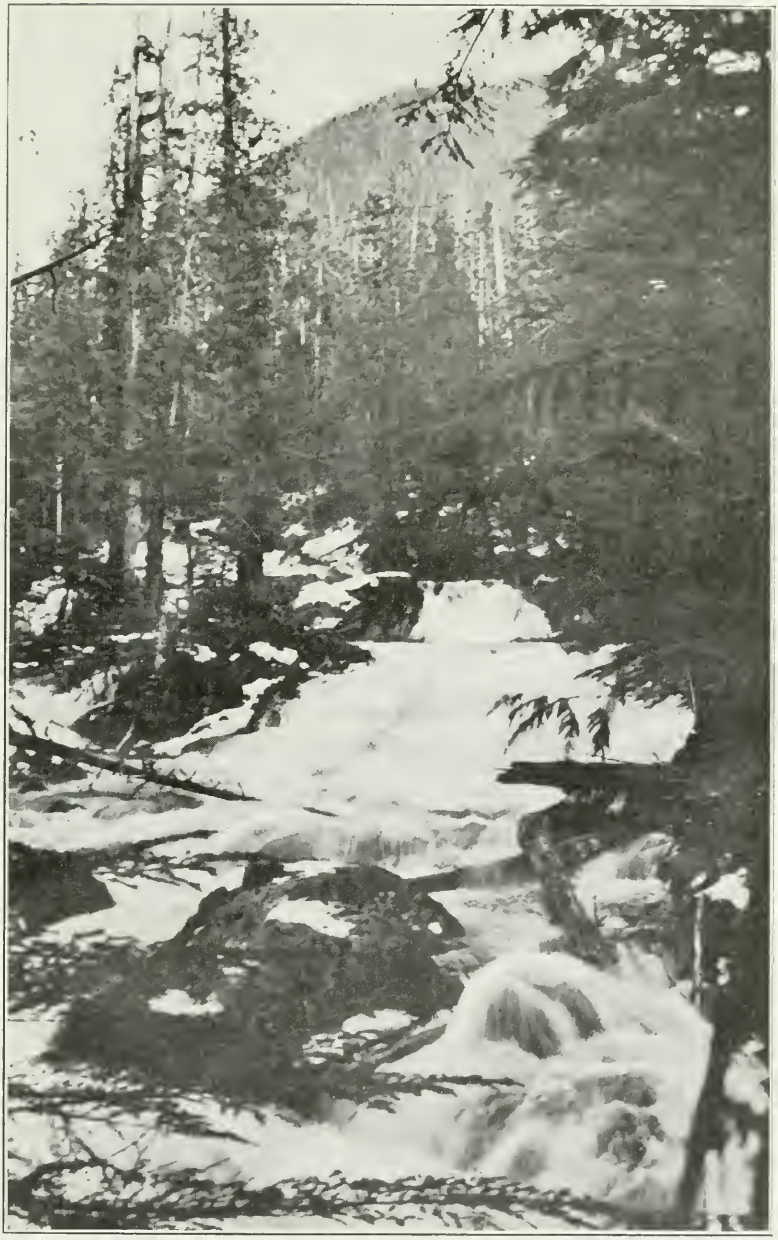
Sir,—Three years ago, during the fall of 1913, I had the honour of being entrusted with what was then work of an original nature, that had not been, as far as I was aware, hitherto approached, viz: To seek out the various rivers and lakes along the British Columbia coast line that were more or less unfrequented and unexplored, and to report upon the general conditions then existing; conditions of spawning grounds, conditions regarding the entry of fish to same, character of river floors, existence of falls, obstructions, natural and unnatural, and species of salmon that were indigenous to each river or lake. Also to give my impressions generally with regard to the best methods to adopt, scientifically and practically, to hold intact, or further develop these great natural fish propagating grounds that lie between our greater rivers, the Fraser, Skeena, and the Naas, and to get towards the sources of these minor rivers and enter and explore any lakes that may be hidden and hitherto unfrequented, and to report upon their general environment, and adaptability for centres of fish propagation.

You also requested me to pay due and special attention to pelagic fish life along that part of the coast line over which I necessarily had to journey, and to report what species of commercial fish existed in these inside waters (outside halibut) and to state in what approximate quantities, bearing in mind that the results obtained by any prospecting work in this particular would probably be used by the Fisheries Branch in assisting those commercially interested in the future harvesting of these fish.

It is not necessary for me in this report to again enter into the details of the work accomplished by me during the last three years, as I have from time to time and each year placed before you separate and detailed reports upon each river and lake which I visited and worked upon, and in the same manner reported upon pelagic fish existence in each area.

My object in writing this particular report is to place collectively the summary of my three years' work before you, and before those who may be interested. I find it a very difficult task to write a report of this nature, that can be read by the generality of people, either commercially, officially, or naturally interested in fish life and propagation, in such a manner as to hold them interested and to avoid at the same time technicalities, as unfortunately I have not the talent for original literature. However, I shall bear in mind how painfully uninteresting technical reports generally are, so much so that the generality of people, who might become usefully interested are often so confused that the perusal becomes a labour, and the reports generally reach the waste-basket prematurely. Having regard to the fact that the material matters of my reports were gathered often under circumstances which necessarily led me into privation and a certain amount of physical discomfort, it would be a great disappointment to me to feel that this report should have such a tragic ending.

It may be easier for those who have only a superficial conception of the geography of the British Columbia coast line if I as nearly as possible describe graphically, and by the aid of my camera give an impression of the physical aspect of this magnificent line of coast. Needless to say an enormous line of coast like ours with its great inland waterways and hundreds of creeks and rivers hidden in the background will take some considerable time, energy, and personal self-sacrifice before a detailed survey and eventual authentic report regarding the general conditions can be furnished, and added to those which have already been explored and reported upon, and which are now being rapidly restored and developed by the Fishery Department.



Typical falls tumbling into the sea, with virgin waters behind barren.

A barrier gate that can be opened.

Falls within one mile from the mouths of rivers, that could be opened to the ascent of salmon.
Fisherman's Cove, Ursula Reach.

To the casual observer travelling along our shore-line from Vancouver north towards the Skeena and Naas rivers, one has ever before him the long ever varying, ever changing mainland coast mountain range, with the bases of those great snow-capped peaks and lesser mountains reaching down to the sea, some meeting it in graceful undulating slopes, others towering right up, as it were, from the ocean depths with great ragged ice-worn cliffs, often abruptly rising to an unbroken altitude of 3,000 feet.

It is this great natural barrier that shuts off our great continent stretching to the east.

It is only when you approach this coast range closely that here and there at broken intervals of 30 miles or so you come upon great gaps or gateways to the great long inlets; all the work of some great prehistoric earth movement that has naturally opened up great long meandering channels, dark and deep, where the sea rushed in and so made great inland navigable waters with a shore-line of many thousands of miles.

Into these great inlets and away at their heads, and around their picturesque bays, empty hundreds of rivers and creeks that have their source in some lake hidden away in some far-off valley, others having their source in some great glaciers that fill the valleys high up and far back, others again mere mountain torrents that dry and become a mere crevasse in the summer months.

Here in this environment, and amongst these rivers and lakes, and further back in hidden creeks and lesser lakes the salmon spawn, and so maintain a continued channel of commercial fish supply. Remote and isolated places are they, hidden away from the beaten track of man.

In this environment I spent the winter months of 1913, 1914, and 1915, and worked and so collected the material of these various reports that from time to time I placed before you. However important the continuation of the work may be with regard to the subject-matter of my recent reports on rivers that were obstructed by natural and unnatural obstructions, and lakes shut in from similar causes, they all more or less, to my mind, drop into comparative insignificance when considered with another serious matter which has come before me during this year, and details of which I have in my detailed report placed before you. I refer to the subject of falls.

To illustrate generally what I mean to convey, I have in mind a particular line of coast stretching north of Queen Charlotte sound, which, with its many islands, holds practically in or about 100 important rivers and creeks directly flowing into the sea.

These particular creeks have a most peculiar feature characteristic of the surrounding mountainous country. Fully 60 per cent of them have impassable falls within an average distance (roughly estimated) of about one mile back from the sea, which in effect practically means that the average available propagating grounds on these particular creeks are limited to this confined area.

On exploring these obviously barren waters above the falls I found rivers that practically without exception reached back for literally hundreds of miles (collectively), rivers that in every detailed particular were ideal spawning grounds for salmon. Conditions of river beds, speed of currents, water volume, character of water, shelter for fry, in fact everything collectively would be perfect for salmon propagation, and many of these barren rivers have their source in lakes hidden away in isolated valleys. Lakes that are in every way suitable for the propagation of our much-coveted sockeye.

When, sir, one even superficially glances upon these hundreds of acres and miles of river-beds and lake shores lying barren, and roughly calculates their commercial possibilities as propagating grounds, and contrasts the estimated increase with the existing commercial value of what now I term the "one-mile limit," it does not necessitate the services of a fishery expert to estimate the enormous yield that obviously must eventually result from the opening up of these barren waters.

I have taken due care not to exaggerate or overestimate the extent of these waters, as I feel myself more or less in the unique position of having to report upon a subject that, as far as I am aware, has hitherto not been approached, but I venture to say that in years to come, when probably my sphere of usefulness has ceased to exist, and when those coast waterways and sheds are more fully explored, and eventually opened to the advent of a spawning mass of fish there will result a greater asset to our commercial fish harvest than I dare venture to estimate.

Frequently I have been asked for a reasonable explanation as to the visible decline of fish in many of the waters within the environment of this particular area, particularly in the lesser creeks and rivers.

It is very difficult definitely and authentically to give a reasonable explanation, as the season of the year during which most of my time has been spent upon these waters has not embraced that particular time of year, viz., the late summer and fall which is essential to the collection of more authentic detail, nevertheless I am fairly well satisfied that it is mainly due to the obviously limited propagating grounds to which I have referred. Having regard to the limited area of supply and the ever-increasing activity of capture of mature fish, one cannot expect anything but the obvious result, especially as once a supply becomes limited or fined down the anxiety to fish closer commercially exists. The details regarding this subject of close fishing have been the subject of my report hitherto submitted to you, and are only interesting to those directly occupied in the official duties of protection work.

However, as we are now dealing with the subject of creating waters to give us a legitimate supply to meet an increasing demand, temptation to encroach too close upon our spawning fish must naturally disappear with the advent of the future habitants of our new waters.

There is another subject which I have given close attention. I refer to the traditional theory so generally accepted, viz., the "ravages of trout upon our salmon eggs and fry." I cannot pass this subject, as it is continually recommended or suggested that trout should be exterminated for this particular reason. Personally I have failed to be yet convinced that this ever ought to be necessary (even if it were possible). Beyond any doubt trout are more or less one of a salmon's natural enemies in this particular, and they certainly do a considerable amount of "what I would term natural thinning," which is in common with every other living fish in the waters, and every animal and bird on the land. It therefore centres itself in accepting trout as one of the natural thinning environments of salmon propagation.

Every species of fish, beast, and bird has its natural enemy forever pursuing it but collectively, Nature predominates. Therefore no one with even a rudimentary knowledge of natural history entertains for a moment, at first sight, the natural thinning environment (if a falling-off be observed abnormally).

If an abnormal decline be observed in any particular area one naturally looks first for an unnatural source of trouble, and I venture to say that 90 per cent of the decline in beast, bird, or fish has its origin in the ravages of man, who, prompted by his desire to capture either game or fish, lays waste and destroys almost everything within his reach totally regardless of the future. I regret to say that I am reluctantly forced to conclude that the decline of salmon in many instances has been due to the "total disregard as to the future."

Having regard therefore to my remarks upon this subject might I respectfully suggest that our trout be unmolested until the time arrives when enemies unnatural have no further temptation to come too close upon the heels of our spawning fish.

I have in mind one particular river on Vancouver island that yields an ever-increasing supply of sockeye. The proprietors of this fishery have learnt the wisdom of always allowing abundant stock fish to freely enter, and yet without exception this particular river is literally and abnormally swarming with trout which follow up the

salmon in thousands. No doubt they do some considerable thinning, but it appears it is a natural one and more effective as far as the ultimate supply of sockeye is concerned. This is an abnormal example, and I trust it may be effectively convincing.

To this report I have attached many photographs having a direct bearing upon the subject-matter of fish propagation. I have also attached many photographs descriptive of the general aspect of the environments of our rivers and lakes which, though not apparently having a direct bearing upon fish life, nevertheless have an indirect one, inasmuch as they will help to give those who have never seen this magnificent wild romantic country some slight conception of what it is like.

I nevertheless know that the impressions must be slight, as it is not possible to convey the general characteristics of such an enormous country by mere photographs. It is only when one has the privilege of getting to an altitude of two or three thousand feet and looking at the wonderful panorama of silent range after range of snowcapped mountains, and untouched valleys and hidden lakes and rivers lying in their isolated serenity, that you begin to realize the enormous magnitude of it all, waiting there for the advent of another race.

It is very difficult to write upon this subject without letting one's enthusiasm get the better of one, but as I looked upon this scene it occurred to me oftentimes that such an environment would be in itself an asset that may in time materially help towards the better protection of our spawning fish that reach those remote places.

All the valleys and mountains hold deer and bear in abundance, and almost every species of animal indigenous to the country, and which are held sacred by the big-game hunter. All the rivers and lakes hold trout in abundance held sacred by the angler, while the flats and marshes hold the great Canadian goose in thousands, with every allied species of bird life.

I touch upon this subject as I know that some day men will arrive who, having money and time at their command, and being either sportsmen or naturalists, will find here the veritable paradise for which they seek, and they will bring with them an environment of protection and influence towards the care of our game and fish as they have hitherto done in every other part of the world that at one time rested under the same conditions as this country now does.

They will penetrate in their different pursuits the courses of our rivers lying away back beyond the reach of paid officials, and so report many sources of obstructions that may be brought about by the accumulation of centuries. It is with this object in view that I have touched upon indirect matters relative to our fish life, as I know from my own experience how fisheries have been assisted enormously by the advent of what I term the natural instructive wardens.

My work during the last three winters has brought me into these waters extending back into the mainland from the latitude of Seymour narrows, north as far as Wrights sound and Gardners canal, and I have visited practically every river and creek within this enormous area. Some of the more important rivers I fully explored, many of them I merely superficially surveyed, as it was impossible to go further into the waters lying north owing to the snow and ice-bound conditions during the winter months. Nevertheless I have been enabled, even though my exploration work has been comparatively superficial, to place before you material that has already had the effect of opening up new channels of fish supply.

I now come to the subject of pelagic fish and the future commercial possibilities of further development of the lesser species, or those species outside the halibut, salmon, and herring, which at the moment monopolize the attention of those commercially engaged in the fishing industry. My remarks are confined generally to the inner waters of our coast line, that is to say, within a three-mile limit.

I preface my remarks upon this subject by stating that I do not feel myself in an authentic position to give a close detailed report that must necessarily follow, once a close pelagic survey has been accomplished and the survey must (before it is of any definite value) be made with the assistance of men who are instinctive fishermen and who prospect by instinct and desire and so are a moving engine in exploration or research work of this nature. I lay stress upon this point as I know by experience how difficult it is to do work connected with any form of exploration unless those engaged in the party have the one object in common. Nevertheless I have endeavoured to make a survey of all those waters which from time to time I have visited at different seasons of the year.

I fully realized while at this work that the time was rapidly approaching when those now engaged exclusively in the capture of halibut must necessarily turn their attention to the harvesting of fish equally valuable as a fish food, but apparently at present ignored owing to the traditional absorbing demand for halibut. I am not in a position to even conjecture how long the supply of halibut in these waters will continue at the present rate of capture and existing demand, but I naturally conclude, as a casual observer, that if we are to keep up a supply of valuable fish food for our ever-increasing demand we must necessarily turn our attention to something beyond halibut, salmon, and herring, and I therefore assume that you, sir, had this in mind when you did me the honour of reporting superficially upon this subject. I take the flounder family first, as they happen to be so closely allied to the halibut, but before I refer to the material available I would particularly draw the attention of those who may in the future be engaged commercially in the taking of these fish to the advisability of making arrangements so as to enable them to place these fish on the market in an attractive and modern form, and thereby avoid what might result in an unsuccessful experiment.

Many years ago on the Atlantic these fish were landed in great quantities and thrown crudely upon Billingsgate market in London, also the Manchester and Liverpool markets, and so crudely were they handled (practically undressed), that there was only one possible result which was that they merely reached a third-rate retail market, and were unproductive to the original handlers. However, this passed away with the advent of a more rigid inspection of fish food, which had the effect of forcing those engaged in the collection and handling of these fish either to drop them out or to adopt more modern means of placing these fish attractively and cleanly upon the market.

It is a generally accepted fact that the supply of sole does not reach within a fiftieth part of the demand, yet, if we enter any restaurant or hotel and ask for sole for breakfast it invariably seems available (or its substitute), and the substitute has its origin in some species of flounders or plaice. There exists a good and a bad substitute in almost everything, and flounders handled in a modern manner not only make a good substitute, but I defy any one but a connoisseur to detect the difference.

Means are now adopted on the trawlers along the Atlantic shores of Great Britain, Iceland, Bay of Biscay, and the Siberian shores to put these fish up right away at the hour of capture in packages for the ultimate retail market. Each boat has on board boys or men whose duty it is to immediately fillet the fish, place in approximately one pound fillets and pack in flat boxes containing about 20 or 30 pounds of fish, with shell ice, when they are placed in a chilled atmosphere.

It has been found that not alone does this beautiful material find a good market but it demands the same price as black sole which often reaches as much as 22 cents a pound on the eastern market. And the fact of having these fish practically ready for the table in convenient 20-pound parcels allows the smaller dealers an opportunity of handling and distributing amongst small retail customers. It, in short, had the effect

of reaching a demand acutely felt for years by people who hitherto had only these fish in a soft tissue, broken, unattractive form.

I emphatically state this branch of fishing must eventually have a great future on this coast because we have in every bay and inlet and foreshore all along our coast to the north of Seymour narrows a never-failing enormous supply of these fish of magnificent quality, variety, and size. The coast appears to me, even with a mere superficial survey, to be literally swarming with this magnificent food supply, and, so far as I know, no one appears to be engaged in their capture beyond a few small boats who capture mud flounders of the lowest type within the environments of the Fraser river, and Vancouver harbour, which are placed upon the market in a prehistoric and almost revolting manner. With regard to the existence of the sardine and sardine herring, I have during my journeys along our northern shores within Queen Charlotte and Millbank sounds met a few men who were from time to time engaged in the capture and canning of these fish in Norwegian waters. We are now fully aware that Norway has become in recent years the largest distributing centre in the world for sardine and herring and allied fish canned in oil, so much so that her demand for this particular article of food has become so great that it is with great difficulty a supply is maintained, hence the advent of a few men now on this coast prospecting for sardine and allied material with the ultimate object of capture and distribution. I have seen, personally, inlets crammed with these fish, and I know that these men who have been prospecting are fully satisfied that all the material necessary to build up a great industry exists.

Such an enormous variety of edible fish frequent or are indigenous to our waters that it is difficult even to superficially detail them or rather to classify them, however, generally speaking, we have several varieties of bass, and rock fish, cultus cod, black cod, grey cod, hake, whiting, and last, but to my mind the most prolific and valuable fish, the much despised "red cod." All these fish are in abundance and, as far as I have learned or seen, no one has engaged commercially in their capture, with the exception of the cultus cod in the gulf of Georgia.

It is universally admitted by those who have used red cod as a food, whether by force of circumstances or choice, that the red cod are without exception one of the choicest edible fish indigenous to our waters. Strange as it may appear, these fish practically do not exist on our markets.

One often wonders why the Pacific market is practically confined to the everlasting halibut. The generality of people not engaged in the fishing industry no doubt are under the impression that no other fish save halibut and salmon exist on the Pacific coast. It is only a natural conclusion to arrive at. However, those engaged in the distribution of our fish food supply have no doubt some wise reason in holding back all other forms of fish food that literally swarm along our shores.

I was running along the west coast of Vancouver island, six or seven miles off shore, one September day, and had the honour of having on board some gentlemen officially connected with the Fishery Department. For a distance of close upon nine miles we passed through a literal field of dead red cod floating upon the surface of the water. Fish that had been hooked upon the halibut lines, taken off, and thrown broadcast over the face of the waters as if they were carrion. Great distress existed in Vancouver that year and at that moment people were being fed by public subscription, and yet this appalling waste of valuable food existed daily, and yet exists.

I fear that this wilful waste of valuable food must some day bring in its trail the proverbial period of "woeful want."

If one inquires why this is so, he is ever met with the same stereotyped reply, "No demand exists." No demand has ever been sought for, is the real explanation.

Within this year, 1915, down in the waters of the United States, existed a fish similarly despised, the "Tillfish." The waters were swarming with them, and yet they were beyond the reach of the people who craved for fish food in a cheaper form. The United States Government equipped a boat for the harvesting of these fish, and placed the resulting captures upon the public free. What has resulted? At the moment so enormous has the demand for these hitherto despised fish become, that a regular fleet of boats are now engaged in their commercial capture. I hope soon to see the day when these fish now finding no place in our markets may be similarly captured and become a source of a long-felt food demand that must necessarily exist amongst our people.

With regard to the herring, certainly the choicest fish I have seen are those that approach our shores to the north of Millbank sound and south of Pitt island. These fish run right in from the Pacific early in March and seem to hit the Pacific slope of Princess Royal island and here divide, some running up Whale channel, others coming round and north via Klemtu pass where they eventually work up towards Graham reach and up towards Boxer and Ursula reaches towards Kitimat.

It seems a pity that they cannot be harvested just then while in such magnificent condition previous to spawning, but at present the methods adopted to capture them are totally inadequate. These are the fish, if captured at this season of the year and properly handled, that will establish a nucleus for a standard marketable brand later on. And now that the new Inspection Act has come into existence the future success of this great industry rests with those who are operating, working in conjunction with inspectors who are thoroughly conversant with the details of the modern methods of curing and packing, and who with their experience and knowledge of the requirements of the modern market can assist in making this great industry an everlasting success.

I now respectfully conclude my report upon general exploration work with a few general remarks and suggestions that I desire to emphasize, and which I am sure will have your due consideration, with regard to the continuation of this important work.

This year, 1915-16, through the courtesy of the General Superintendent of Fisheries and upon your recommendation the *Merry Sea* was purchased and fully equipped, with the object of better enabling me to reach those waters hitherto unapproachable in a boat of the *Fispa's* class, waters that reach far back and were unsafe and undesirable to approach, but nevertheless essentially important, and I take this opportunity of respectfully suggesting that the *Merry Sea* may be reserved for this particular work, as I have found her adequate and suitable in every detail for work of this exceptional character.

May I also respectfully request that you will recommend the necessity of allowing me to approach this exploration work upon our rivers and lakes during those months of the year so essential for the collection of authentic detail regarding the conditions of river and lake levels, during the dry months of August and September, and thus enabling me to reach those important waterways which are held fast in ice and snow during the late fall and winter months, and so are unapproachable except at great personal risk and exposure, resulting in inefficient information. Unless this can be arranged it means that authentic information with regard to the most important rivers can never be satisfactorily gathered, especially with regard to the different species of salmon inhabiting these waters.

Bearing in mind that the Fishery Department are seriously contemplating an expenditure in eventually making these now barren waters productive, it becomes absolutely essential that a complete survey by observation be recorded at the different stages of water levels so as to avoid any possibility of spending money upon places that might never become productive, owing to the fact of overlooking important details at low-water levels.

In closing my report I feel that I can hardly take the credit of furnishing the subject-matter connected with this report and my detail reports without thanking Mr. Huson, my engineer, who has given me at all times his practical assistance and advice in river and bush work, gathered from his long experience on river, lake, and forest.

I am, sir, your obedient servant,

J. F. CRICHTON.

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 1, Province of British Columbia, during the year 1915-16.

Kinds of Fish.	Caught and Landed in a Green State.		Marketed.		Total Marketed Value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Salmon cwt.	428,384	2,721,654			
" used fresh "			169,075	1,281,363	
" canned cases.			289,199	2,024,393	
" pickled cwt.			1,070	13,375	
" mild cured. "			3	45	
" smoked "			61	915	
" salted (exported to the Orient) "			11,735	11,735	
					3,331,826
Cod cwt.	10,702	49,089			
" used fresh "			9,817	98,170	
" smoked "			30	375	
" dried "			275	3,437	
					101,982
Herring cwt.	29,126	78,783			
" used fresh "			12,964	64,820	
" smoked "			2,622	20,976	
" pickled brl.			3,637	58,192	
" salted cwt.			4	32	
					144,020
Whiting "	143	407			
" used fresh "			143		
					1,144
Shad cwt.	43	362			
" used fresh "			43		
					645
Octopus "	111	730			
" used fresh "			111		
					1,665
Halibut, used fresh "	75,313	393,327	75,313		753,130
Flounders "	282	564	282		1,410
Smelts "	2,303	8,895	2,303		18,424
Trout "	4	20	4		100
Oulachons "	272	816	272		2,176
Soles "	2,544	11,480	2,544		20,352
Sturgeon "	811	7,613	811		16,220
Perch "	487	2,306	487		3,896
Skate "	529	1,113	529		4,232
Shrimps and Prawns "	320	3,0·8	320		6,400
Oysters brl.	1,090	14,337	1,090		20,165
Clams "	4,360	17,327			
" used fresh "			4,360		
					43,600
Crabs cwt.	1,443	6,286	1,443		9,379
Salmon roe (exported to United States) "			623		6,230
Fish oil gal.			26,565		9,563
Fertilizer tons.			379		13,083
Totals		3,318,167			4,509,642

THE UNDERNOTED IS IN ADDITION TO THE STATEMENT.

Landed in American Bottoms.					
Halibut (fresh) cwt.	36,700	183,500	36,700		183,500
Home Consumption.					
All varieties (fresh) (Indians) cwt.	755,330	1,510,660	755,330		1,510,660
" (Whites) "	377,665	1,888,325	377,665		1,888,325
					$3,582,485

RECAPITULATION.

Of the Number of Fishermen, etc., and the Number and Value of Fishing Vessels, Boats, Nets, etc., in District No. 1, Province of British Columbia, for the year 1915-16.

—	Number.	Value.
		$
Steam fishing vessels (tonnage 816)	6	177,000
Sailing and gasoline vessels	23	94,750
Boats (sail)	1,179	80,545
" (gasoline)	1,437	589,170
Halibut dories	42	4,200
Gill nets, seines, trap and smelt nets, etc	3,078	236,394
Halibut gear (skates)	450	4,500
Trawls	35	1,750
Hand lines	450	1,125
Crab traps	75	750
Oil factory	1	40,000
Salmon canneries	32	887,873
Clam "		
Freezers and ice-houses	6	572,500
Smoke and fish-houses	7	59 250
Fishing piers and wharves	14	33,847

Total	$2,783,654
Number of men employed on vessels	218
" " boats	5,232
" " carrying smacks	
" persons employed in fish-houses, freezers, canneries, etc	2,209
Totals	7,659

RETURN showing the Number of Fishermen, etc., the Number and Value of in the Fishing Industry in District No. 2, in the

Number.	Fishing Districts.	Vessels and Carrying Smacks.														Boats.				Gill Nets.	
		Steam Vessels.				Sailing and Gasoline Vessels.															
		Number.	Tonnage.	Value.	Men.	40 tons and over, No.	20 to 40 tons, Number.	10 to 20 tons, Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.
				$					$			$					$
1	Skeena River and Prince Rupert	6	490	233093	106	4	9	43	255406	275	920	92000	27	17000	1896	1220	213500
2	Rivers Inlet	3	114	16000	15	....	....	14	42000	28	700	28000	..	....	750	750	131250
3	Naas River	1	26	7000	4	..	....	12	31000	24	275	27500	..	.....	550	500	87500
4	North Coast	4	136	38000	21	....	...	19	43000	38	341	9640	..	.....	451	346	60550
5	Queen Charlotte Islands	3	111	60050	33	....	....	1	1500	3	....	....	20	6000	40	....	———
	Totals	17	877	354093	179	4	9	89	372906	368	2236	157140	47	23000	3687	2816	492800

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Vessels and Boats, and the quantity and Value of all Fishing Gear etc., used Province of British Columbia, during the year 1915-16.

Fishing Gear.								Canneries.		Other Material.						Persons employed in Canneries, Freezers and Fish-houses.	
Seines.		Skates of Gear 400 f= 1 skate.		Hand Lines.		Salmon Traps.		Salmon Canneries.		Freezers and Ice-houses.		Whaling Stations.		Fishing Piers and Wharves.			
Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	
	$				$						$						
20	10300	1500	24000	800	800	...	....	13	735000	5	583000	....	.....	14	155000	1120	1
2	700	....	.....	....	.....	...	...	7	400000	....	.....	....	.....	8	68000	650	2
15	12400	.. .	.....	..	....	2	6000	5	255000	...	.....	...	.....	7	45000	400	3
45	21800	....	.....	....	....	...	....	8	340000	. .	.....	....	....	10	68000	700	4
....	.....	....	.....	60	60	...	....	2	80000	2	120000	2	75855	6	36900	82	5
82	45200	1500	24000	860	860	2	6000	35	1810000	7	703000	2	75855	45	372000	2952	

THE

RETURN showing the quantities and Values of all Fish caught
British Columbia, during

Number.	Fishing Districts.	Salmon, cwt.*	Salmon, value.	Cod, cwt.	Cod, value.	Herring, cwt.	Herring, value.	Soles, cwt.	Soles, value.
			$		$		$		$
1	Skeena and Prince Rupert	267196	801588	2328	11640	18750	18750	75	375
2	Rivers Inlet	123343	370029						
3	Naas River	90701	272103						
4	North Coast	123764	371292			10440	10440		
5	Queen Charlotte Islands	7969	7969						
	Totals	612973	1822981	2328	11640	29190	29190	75	375

CATCH.

and landed in a Green State, in District No. 2, Province of the year 1915-16.

Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Oulachans, cwt.	Oulachans, value.	Clams, brl.	Clams, value.	Fur Seals, No.	Fur Seals, value.	Crabs, cwt.	Crabs, value.	Whales, No.	Whales, value.	Number.
	$		$		$		$		$		$		$	
92750	463750	106	530	1000	5000	.....	.....	39	1170	235	1390	.....	.....	1
.....	.....	...	.....	2500	12500	.....	.....	...	.....	...	.....	.....	.....	2
2714	13570	.....	.....	7000	35000	....	....	..	....	.....	....	....	.....	3
789	3945	.....	.....	450	2250	...	.....	.....	.....	.....	.....	....	.....	4
.....	.....	.....	.....	.....	.....	1000	2000	.....	.....	.....	...	92	45632	5
96253	481265	106	530	10950	54750	1000	2000	39	1170	235	1390	92	45632	

THE CATCH

RETURN showing the Quantities and Values of all Fish and Fish Products Province of British

Number.	Fishing Districts.	Salmon, used fresh and frozen, cwt.	Salmon, canned, cases.	Salmon, salted, cwt.	Salmon, mild cured, cwt.	Cod, used fresh cwt.	Cod, shipped green-salted.	Herring, used fresh, cwt.	Herring, used as bait, brl.
1	Skeena River and Prince Rupert	18697	279161	129	9229	2122	103	1550	8600
2	Rivers Inlet		146838						
3	Naas River	3099	104289						
4	North Coast	400	146862						5220
5	Queen Charlotte Islands			6375					
	Totals	22196	677150	6504	9229	2122	103	1550	13820
	Rates	12.50	7	15	15	10	12.50	5	2.50
	Value	277450	4740050	97560	138435	21220	1287	7750	34550
	Total values								

MARKETED.

Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 2, Columbia, during the year 1915-16.

Soles, used fresh, cwt.	Halibut, used fresh, cwt.	Flounders, used fresh, cwt.	Oulachans, used fresh, cwt.	Clams, used fresh, bbl.	Crabs, used fresh, cwt.	Fur seal skins, number.	Bonemeal, ton.	Fertilizer, ton.	Fish oil, gal.	Whale oil, gal.	Number.
75	92750	106	1000	.....	235	39	.....	.....	.....	.....	1
.....	....	.....	2500	.....	.....	.....	.....	.....	.....	.....	2
.....	2714	.....	7000	.....	.....	.....	.....	.....	.....	.....	3
.....	789	.....	450	.....	.....	.....	.....	.....	.....	.....	4
.....	.....	.....	.....	1000	.....	.....	82	217	7000	119338	5
75	96253	106	10950	1000	235	39	82	217	7000	119338	
8	10	10	5	2	6 50	30	23.17	42	40c	29c.	
600	962530	1060	54750	2000	1528	1170	1910	9114	2800	34608	

.... $6,390,372

* Cwt. = 100 lb.

RECAPITULATION

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products, Marketed in a fresh, dried, pickled, canned, etc., State for District No. 2, Province of British Columbia, during the year 1915-1916.

Kinds of Fish.		Caught and landed in a Green State.		Marketed.		Total Marketed Value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	$
Salmon	Cwts.	615,902	1,829,229			
" used fresh	"			22,196	277,450	
" canned	"			677,150	4,740,050	
" salted (dry)	Cwt.			6,504	97,560	
" mild cured	"			9,229	138,435	
						5,253,495
Cod	"	2,328	11,640			
" used fresh	"			2,122	21,220	
" green-salted	"			103	1287	
						22,507
Herring	"	29,190	29,190			
" used fresh	"			1,550	7750	
" used as bait	brl.			13,820	34,550	
						42,300
Soles	Cwt.	75	375			
" used fresh	"			75		606
Halibut, used fresh	"	96,253	481,265	96,253		962,530
Flounders	"	106	530	106		1,060
Oulachons	"	10,950	54,750	10,950		54,750
Clams, used fresh	brl.	1,000	2,000	1,000		2,000
Crabs	Cwt.	235	1,390	235		1,528
Fur Seals	No.	39	1,170			
Fur Seal Skins	"			39		1,170
Whales	"	92	45,632			
Fish Oil	Gals.			7,000		2,800
Whale Oil	"			119,338		34,608
Fertilizer	Tons.			217		9,114
Bonemeal	"			82		1,910
Totals			2,457,171			6,390,372
The undernoted is in addition to the above Statement, Landed in American Bottoms.—						
Halibut (fresh)	Cwts.	98,942	494,710	98,942		494,710

RECAPITULATION

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in District No. 2, Province of British Columbia, for the year 1915-16.

—	Number.	Value
		$
Steam fishing vessels (tonnage 877)	17	354,093
Sailing and gasoline vessels	102	372,906
Boats (sail)	2,236	157,140
" (gasoline)	47	23,000
Gill nets	2,816	492,800
Seines	82	45,200
Skates of Gear (400 F=1 Skate)	1,500	24,000
Hand lines	860	860
Traps, Salmon	2	6,000
Salmon Canneries	35	1,810,000
Freezers and Ice-houses	7	703,000
Fishing piers and wharves	45	372,000
Whaling Stations	2	75,855
Total	....	4,436,854

Number of men employed on vessels	547
" " boats	3,687
" " carrying smacks	..
Number of persons in fish-houses, freezers, canneries, etc.	2,952
	7,186

RETURN showing the Number of Fishermen, etc., and the Number and Value of Vessels and Boats, and the Quantity and Value of Fishing Gear, etc., used in the Fishing Industry of District No. 3, Province of British Columbia, during the year 1915-16.

Number.	Fishing Districts.	Vessels, Boats and Carrying Smacks.																	
		Steam Vessels.				Sailing and Gasoline Vessels.					Boats.					Carrying Smacks.			
		Number.	Tonnage.	Value.	Men.	(40 tons and over) Number.	(20 to 40 tons) Number.	(10 to 20 tons) Number.	Value.	Men.	Sail.	Value.	Gasoline.	Value.	Men.	Number.	Value.	Men.	Number.
				$					$			$		$			$		
1	Nanaimo	1	40	7,500	7	.....	1	12	33,600	28	.....	.....	169	126,750	358	75	18,750	..	1
2	Victoria Cowichan	2	114	25,000	14	.....	2	.....	33,000	17	.....	.....	66	61,000	131	20	8,000	....	2
3	Alberni	1	76	32,450	11	.....	....	8	24,000	16	25	2,500	103	51,700	128	6	450	...	3
4	Clayoquot	...	.....	.....	...	1	....	.....	18,000	10	.....	...	33	16,650	33	12	8,400	.	4
5	Quatsino	3	111	75,000	33	...	.....	....	.....	...	2	80	....	.....	.....	.....	.....	...	5
6	Alert Bay	...	.....	.....	...	.....	.....	7	37,500	24	12	4,212	4	5,800	16	31	1,416	20	6
7	Quathiaski	...	....	.....	...	...	3	10	49,500	39	52	2,080	40	12,000	92	.....	.....	...	7
8	Comox	...	.....	.....	...	.....	.....	4	15,000	22	.....	.....	2	650	2	1	60	..	8
9	Pender Harbour	.	.....	.....	...	.....	1	3	5,300	31	30	1,933	242	107,890	456	31	63,150	138	9
	Total	7	341	139,950	65	1	7	44	215,900	187	121	10,811	659	382,440	1,216	176	100,226	158	

RETURN showing the Number of Fishermen, etc., the Number and Value of Vessels and Boats, and the Quantity and Value of Fishing Gear, etc., used in the Fishing Industry of District No. 3, Province of British Columbia, during the year 1915-16.—*Concluded.*

Number.	Fishing Districts.	Fishing Gear.						Canneries.				Other Material.						Persons employed in Canneries, Freezers and Fish-houses.	Number.
		Gill-Nets, Seines, Trap & Smelt Nets, etc.		Hand Lines.		Whaling Stations.		Salmon Canneries.		Clam Canneries.		Freezers and Ice-houses.		Smoke and Fish-houses.		Fishing Piers and Wharves.			
		Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.		
			$				$		$		$		$		$		$		
1	Nanaimo	157	34,710	125	250	....	.....	1	9,500	....	....	....	.....	18	59,400	....	.....	269	1
2	Victoria Cowichan	72	97,150	600	900	....	.....	3	88,200	1	3,000	3	125,500	2	550	13	38,000	269	2
3	Alberni	42	9,200	200	200	1	35,000	1	27,000	....	....	2	102,500	7	23,000	6	10,500	250	3
4	Clayoquot	4	6,000	30	1,100	....	.....	1	50,000	....	.....	....	.....	....	.....	2	3,000	80	4
5	Quatsino	....	.....	25	50	1	70,000	1	22,500	....	.....	....	.....	....	.....	2	6,000	85	5
6	Alert Bay	44	13,050	150	150	....	.....	4	95,000	....	.....	1	8,140	....	.....	3	9,056	249	6
7	Quathiaski	81	14,580	460	920	....	.....	2	80,000	....	.....	1	1,000	....	.....	2	1,800	126	7
8	Comox	2	1,500	....	....	....	.....	....	.....	....	.....	....	.....	....	.....	....	.....	....	8
9	Pender Harbour	215	21,500	180	180	....	.....	1	1,000	....	....	....	.....	2	1,000	....	.....	21	9
	Totals	617	197,690	1,770	3,750	2	105,000	14	373,200	1	3,000	7	237,140	29	83,950	28	68,350	1,349	

THE CATCH.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in District No. 3, Province of British Columbia, during the year 1915-16.

Number.	Fishing Districts.	Salmon, *cwt.	Salmon, value.	Cod, cwt.	Cod, value.	Herring, cwt.	Herring, value.	Halibut, cwt.	Halibut, value.	Flounders, cwt.	Flounders, value.	Smelts, cwt.	Smelts, value.	Trout, cwt.	Trout, value.	Number.
			$		$		$		$		$		$		$	
1	Nanaimo	60,704	121,408	8,202	32,868	304,281	304,281	...	...	236	472	18	126	67	670	1
2	Victoria Cowichan	42,611	170,444	511	2,044	728	728	19,160	95,800	134	268	106	742	137	1,370	2
3	Alberni	36,878	147,512	81	324	52,725	52,725	1,055	5,275	23	46	10	70	85	850	3
4	Clayoquot	10,745	42,980	65	260	253	253	147	735	18	36	8	56	18	180	4
5	Quatsino	2,090	16,720	52	208	375	375	122	610	25	50	11	77	32	320	5
6	Alert Bay	54,124	216,496	25	100	...	...	2,725	13,625	41	82	15	105	25	250	6
7	Quathiaski	56,655	226,620	9,790	39,160	207	207	121	605	58	116	21	147	55	550	7
8	Comox	2,147	17,176	91	364	...	...	..	...	233	466	34	238	83	830	8
9	Pender Harbour	51,750	207,000	4,023	16,092	50,567	50,567	...	...	241	482	7	49	35	350	9
	Exported to U. S. A	7,404	26,654													
	Totals	325,108	1,193,010	22,840	91,360	409,136	409,136	23,330	116,650	1,609	2,018	230	1,610	835	8,350	

* Cwt. = 100 pounds.

RETURN showing the Quantities and Values of all Fish caught and landed in a Green State in District No. 3, Province of British Columbia, during the year 1915-16.---*Concluded.*

Number.	Fishing Districts.	Oulachans, cwt.	Oulachans, value.	Soles, cwt.	Soles, value.	Mixed Fish, cwt.	Mixed Fish, value.	Clams, brls.	Clams, value.	Fur Seals, No.	Fur Seals, value.	Dulse, Crabs, Cockles, and other Shell Fish.		Whales, No.	Whales, value.	Number.
												Cwt.	Value.			
			$		$		$		$		$		$		$	
1	Nanaimo			146	584	1,316	3,948	2,764	5,528			178	534			1
2	Victoria Cowichan			121	484	1,524	4,572	634	1,268							2
3	Alberni			14	56	403	1,209	251	502							3
4	Clayoquot			11	44	510	1,530	206	412	400	12,000					4
5	Quatsino			12	48	356	1,068	215	430					137	42,100	5
6	Alert Bay	1,560	7,800	41	164	301	903	226	452							6
7	Quathiaski	947	4,735	52	208	802	2,406	450	900							7
8	Comox			115	460	314	942	231	462							8
9	Pender Harbour			47	188	1,407	4,221	311	622							9
	Totals	2,507	12,535	559	2,237	6,933	20,799	5,288	10,576	400	12,000	178	534	137	42,100	

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for District No. 3, Province of British Columbia, during the year 1915-16

Number.	Fishing Districts.	Salmon, used fresh and frozen. *cwt.	Salmon, canned, cases.	Salmon, salted, cwt.	Salmon, mild cured cwt.	Salmon, smoked, cwt.	Cod, used fresh, cwt.	Herring, used fresh, cwt.	Herring, smoked, cwt.	Herring, dry salted, cwt.	Herring, used as bait brl.	Herring, canned, cases.	Herring, Scotch cured, brl.	Halibut, used fresh, cwt.	Number.
1	Nanaimo	59360	1600				8202	1761		174000	3360				1
2	Victoria Cowichan	7771	32510		250	4210	511	728						19160	2
3	Alberni	12116	28933		306		81	32731		6700		11468		1055	3
4	Clayoquot	1865	10200		208		65	253						147	4
5	Quatsino	2090					52	375						122	5
6	Alert Bay	22922	36232	116	313	90	25							2725	6
7	Quathiaski	8271	57557			21	9790	207						121	7
8	Comox	2147					91								8
9	Pender Harbour	35482		13014			4023	23370	3169	3000			5253		9
	Exported to U.S.A.	7404													
	Totals	159428	167032	13130	1077	4321	22840	59428	3169	183700	3360	11468	5253	23330	
	Rates	5.41	7.	2.50	11.	15.	9.	5.	10.	1.70	2.50	6.	20.	11.	
	Values	862786	1169224	32825	11847	64815	205560	297140	31690	312290	8400	68808	105060	256630	

*Cwt. = 100 lbs. † Quintal = 112 lbs.

THE CATCH MARKETED.

RETURN showing the Quantities and Value of all Fish and Fish Products, Marketed in a fresh, dried, pickled, canned, etc., State, for **District No. 3, Province of British Columbia**, during the year 1915-16.

Number.	Fishing Districts.	Flounders, used fresh, cwt.	Smelts, used fresh, cwt.	Trout, used fresh, cwt.	Oulachans, used fresh, cwt.	Soles, used fresh, cwt.	Mixed Fish, used fresh, cwt.	Clams and Quahaugs, used fresh, cwt.	Clams and Quahaugs, canned, cases.	Dulse, Crabs, Cockles, and other shell fish used fresh, cwt.	Fur Seal Skins, number.	Bonemeal, tons.	Fertilizer, tons.	Whale Oil, gal.	Number.
1	Nanaimo	236	18	65	.....	146	1316	328	2436	178	.....	.....	.....		1
2	Victoria Cowichan	134	106	437	.....	121	1524	634	.....	.....	.....	.....	.....		2
3	Alberni	23	10	85	.....	14	403	251	.....	.....	.....	.....	.....		3
4	Clayoquot	18	8	18	.....	11	510	206	.....	.....	400	.....	.....		4
5	Quatsino	25	11	32	.....	12	356	215	.....	.....	.....	137	357	419850	5
6	Alert Bay	41	15	25	1560	41	301	226	.....	.....	.....	.....	.....		6
7	Quathiaski	58	21	55	947	52	802	450	.....	.....	.....	.....	.....		7
8	Comox	233	34	83	.....	115	314	231	.....	.....	.....	.....	.....		8
9	Pender Harbour	241	7	35	.....	47	1407	311	.....	.....	.....	.....	.....		9
	Exported to U.S.A.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....		
	Totals	1009	230	835	2507	559	6933	2852	2436	178	400	137	357	419850	
	Rates	5.	10.	25.	8.	9.	5.	5.	7.50	8.	30.	22.	40.	.....	
	Values	5045	2300	20875	20056	5031	34665	14260	18270	1424	12000	3014	14280	60011	

Total value ..... $ 3,638,306

*Cwt. = 100 lbs. † Quintal = 112 lbs.

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products marketed in a fresh, dried, pickled, canned, etc., State, for District No. 3, Province of British Columbia, during the year 1915-16.

Kind of Fish.		Caught and Landed in a Green State.		Marketed.		Total marketed value.
		Quantity.	Value.	Quantity.	Value.	
			$		$	
Salmon	cwt.	325,108	1,193,010			
" used fresh	"			159,428	862,786	
" canned	cases.			167,032	1,169,224	
" salted (dry)	cwt.			13,130	32,825	
" mild cured	"			1,077	11,847	
" smoked	"			4,321	64,815	
						2,141,497
Cod	"	22,840	91,360			
" used fresh	"			22,840		205,560
Herring	"	409,136	409,136			
" used fresh	"			59,428	297,140	
" canned	cases.			11,468	68,808	
" smoked	cwt.			3,169	31,690	
" dry salted	"			183,700	312,290	
" used as bait	brl.			3,360	8,400	
" Scotch cured	"			5,253	105,060	
						823,388
Halibut, used fresh	cwt.	23,330	116,650	23,330		256,630
Flounders	"	1,009	2,018	1,009		5,045
Smelts	"	230	1,610	230		2,300
Trout	"	835	8,350	835		20,875
Oulachons	"	2,507	12,535	2,507		20,056
Soles	"	559	2,236	559		5,031
Mixed Fish	"	6,933	20,799	6,933		34,665
Clams	"	5,288	10,576			
" used fresh	brl.			2,852	14,260	
" canned	cases.			2,436	18,270	
						32,530
Crabs	cwt.	178	534	178		1,424
Fur seals	No.	400	12,000			
Fur seal skins	"			400		12,000
Whales	"	137	42,100			
Whale oil	gal.			419,850		60,011
Fertilizer	tons.			357		14,280
Bonemeal	"			137		3,014
Totals			1,922,914			3,638,306

RECAPITULATION.

Of the Number of Fishermen, etc., and the Number and Value of Fishing Vessels, Boats, Nets, etc., in District No. 3, Province of British Columbia, during the year 1915-16.

—	Number.	Value.
		$
Steam fishing vessels (tonnage 341)	7	139,950
Sailing and gasoline vessels	52	215,900
Boats (sail)	121	10,811
" (gasoline)	659	382,440
Carrying smacks	176	100,226
Gill nets, seines, trap and smelt nets, etc	617	197,690
Hand lines	1,770	3,750
Whaling stations	2	165,000
Salmon canneries	14	373,200
Freezers and ice-houses	7	237,140
Smoke and fish-houses	29	83,950
Fishing piers and wharves	28	68,350
Clam cannery	1	3,000
Totals		1,921,407

Number of men employed on vessels	252
" " boats	1,216
" " carrying smacks	158
" persons employed in fish-houses, freezers, canneries, etc	1,349
Totals	2,975

RECAPITULATION.

Of the Quantities and Values of all Fish caught and landed in a Green State, and of the Quantities and Values of all Fish and Fish Products Marketed in a fresh, dried, pickled, canned, etc., State, for the Whole Province of British Columbia, during the year 1915-16.

Kinds of Fish.	Caught and landed in a Green State.		Marketed.		Total Marketed Value.
	Quantity.	Value.	Quantity.	Value.	
		$		$	$
Salmon cwts.	1,369,394	5,743,893			
" used fresh "			350,699	2,421,599	
" canned cases.			1,133,381	7,933,667	
" salted (dry) cwts.			31,369	142,120	
" mild cured "			10,309	150,327	
" smoked "			4,382	65,730	
" pickled "			1,070	13,375	
					10,726,818
Cod "	35,870	152,089			
" used fresh "			34,779	324,950	
" green-salted "			103	1,287	
" dried "			275	3,437	
" smoked "			30	375	
					300,049
Herring "	467,452	517,109			
" used fresh "			73,942	369,710	
" canned cases.			11,468	68,808	
" smoked cwts.			5,791	52,666	
" pickled brls.			8,890	163,252	
" used as bait "			17,180	42,950	
" salted (dry) "			183,704	312,322	
					1,009,708
Shad cwts.	43	332			
" used fresh "			43		645
Halibut, used fresh "	194,896	991,242	194,896		1,972,290
Flounders "	1,397	3,112	1,397		7,515
Smelts "	2,533	10,505	2,533		20,724
Trout "	839	8,370	839		20,975
Oulachons "	13,729	68,101	13,729		76,982
Whiting "	143	407	143		1,144
Sturgeon "	811	7,613	811		16,220
Perch "	487	2,306	487		3,896
Octopus "	111	730	111		1,665
Soles "	3,178	14,091	3,178		25,983
Skate "	529	1,113	529		4,232
Mixed Fish "	6,933	20,799	6,933		34,665
Shrimps and Prawns "	320	3,088	320		6,400
Oysters Brls.	1,090	14,337	1,090		20,165
Clams "	10,648	29,903			
" used fresh "			8,212	59,860	
" canned cases.			2,436	18,270	
					78,130
Crabs and other shell fish cwts.	1,856	8,210	1,856		12,331
Salmon Roe "			623		6,230
Fur seals No.	439	13,170			
Fur seal skins "			439		13,170
Whales "	229	87,732			
Fish oil gal.			33,565		12,363
Whale oil "			539,188		94,619
Fertilizer Tons.			953		36,477
Bonemeal "			219		4,924
Totals		7,698,252			14,538,320

The undernoted is in addition to the above statement :

Landed in American Bottoms.					
Halibut (Fresh) cwts.	135,642	678,210	135,642		678,210
Home Consumption.					
All articles (fresh) (Indians) cwts.	755,330	1,510,660	755,330		1,510,660
" " (Whites) "	377,665	1,888,325	377,665		1,888,325
					4,077,195

RECAPITULATION.

Of the Number of Fishermen, etc., and of the Number and Value of Fishing Vessels, Boats, Nets, etc., in the Whole Province of British Columbia, for the year 1915-16.

	Number	Value.
Steam fishing vessels (tonnage 2034)	30	671,043
Sailing and gasoline vess-ls	177	683,556
Boats (sail)	3,536	248,496
" (gasoline)	2,143	994,610
Carrying smacks	176	100,226
Gill nets, seines, trap and smelt nets, etc.	6,593	972,084
Salmon traps	2	6,000
Trawls	35	1,750
Hand lines	3,080	5,735
Crab traps	75	750
Oil factory	1	40,000
Salmon canneries	81	3,071,073
Freezers and ice-houses	20	1,512,640
Smoke and fish-houses	36	143,200
Fishing piers and wharves	87	474,197
Halibut gear (Skates)	1,950	28,500
Halibut dories	42	4,200
Whaling stations	4	180,855
Clam cannery	1	3,000
Totals		9,141915

Nnmber of men employed on vessels	1,017
" " boats	10,135
" " carrying smacks	158
" persons employed in fish-houses, freezers, canneries, etc.	6,510
Totals	17,820

APPENDIX 10.

REPORT ON OYSTER CULTURE, BY THE DEPARTMENT'S EXPERT FOR THE SEASON OF 1915.

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to submit to you my annual report on last season's work in connection with oyster culture in the lower provinces.

COCAGNE, N.B.

On the opening of navigation the *Ostrea* was removed from her winter quarters and prepared for sea, and when ready, received instructions from your department to proceed to Cocagne, Kent county, New Brunswick. I sailed from Charlottetown on the 21st May, the season being very backward, with cold and strong winds prevailing.

On my arrival in Cocagne, I made an examination of the bay and found the area to consist of several disjointed oyster beds in continuous proximity to each other. These were staked out and raked over to remove the eelgrass and sediment from the surface of the beds. These grounds are situated on the north side of the bay, while others were found at the mouth of Cocagne river, which were also raked over and the weed removed until I considered they were clean enough to catch spat. I completed my work here on the 28th of June. There were several oyster beds higher up the river but was unable to give them any attention as the bridge has no draw, and I could not get the steamer through.

The oysters appeared to be more plentiful at the mouth of the river, where the beds were very firm and the shells were clean and hard, while the beds farther out were scattered all over the north side of the bay, and were mingled with mud. The whole of the bottom of the bay is composed of soft mud, with a heavy growth of eelgrass extending over the whole area, and with an average depth of 7 or 8 feet at low water. This bay is becoming gradually silted up, with the result that the oyster beds are becoming mudded over.

Mud-digging has been carried on here for many years past, and several old dead beds are in evidence to-day. These depleted oyster beds and mud-digger cuts have contained large quantities of quahaugs and have been quite a source of revenue to the fishermen in this locality: the catch of quahaugs has exceeded that of oysters for some time past. This year, however, there has been very little demand for quahaugs, and it is also noticeable that they are scarcer here than formerly. At times, during the spring fishing, some of the fishermen and quahaug-buyers have held their stock over in crates or floats for a better market, and these were moored near the bridge; when the hot weather set in, these quahaugs threw off spawn which was carried up the river by the tide, and during the last few years quahaugs have been caught from there. Before that time no quahaugs were ever found in the river above the bridge.

After completing my work here I proceeded to Richibucto.

RICHIBUCTO, N.B.

Having received instructions from your department to make a survey of that portion of Richibucto river above Chapel point, with a view to determining the conditions of the river and also the quantity of oysters that may be removed from year to year, and allocating areas on which mud-diging may be permitted; in compliance with the above instructions I have examined Richibucto river from Brown's Yard bridge down to Chapel point, covering a distance of about 13 nautical miles or 15 statute miles.

Oysters were found to be growing in small quantities and thinly scattered along both sides of the channel at Brown's yard. This is just below the forks of the river, where the water was found to be fresh. The shells of the oysters which were taken from the upper part of the river are extremely thin and brittle; and these oysters are of no value whatever, as they are tasteless, and the shells are too soft for transportation purposes. The same condition was found to exist as far down as Molus river, a distance of about 7½ miles from Brown's Yard bridge.

At the mouth of Bass river, which lies on the north side of Main river, 3⅛ miles below Brown's Yard bridge, mud-digging has been carried on, and oysters are found to be growing wherever they can attach themselves to any rough substance. The bed of the river is composed of soft mud; the sides of the channel are firmer and fairly steep, and consist of stone, gravel, sand, shells, and mud.

The water is fresh; the readings of my salinometer were: at Brown's Yard bridge, zero; Bass river, zero; Farrow's wharf, Middle island, 1 degree; mouth of Molus river, 3 degrees. These readings were taken at the surface on the same date, and no doubt the salinity would be about one degree greater at the bottom. At several places beds of mussels were found while examining the bottom.

From Brown's yard down to Molus river, covering a distance of 6¼ nautical miles or just under 7½ statute miles, the oysters are of no practical value to any one but the farmer, and I have drawn a red line across the chart at this point.

From Molus river down to Dutchman's point, about a quarter of a mile above Main River bridge, is a cove of considerable size, where mud-digging has been carried on, and oysters were also found to be a little more plentiful and a little harder in the shell.

From Main River bridge down to Big cove, oysters of all sizes were found along the sides of the channel; and in the cove itself, where the water is not so deep as in the river, oysters are found to be growing over nearly the whole area, and a considerable amount of mud-digging has been carried on both in the past and at the present time in this locality.

From Molus river down to the entrance of St. Nicholas river, a distance of 7½ statute miles, each side of the channel may be termed one continuous oyster bed. The banks of the river upon which the oysters grow are fairly steep, varying in width from 30 to 80 feet; and a great many oysters are found in deep water at the edges of the river. At some points oysters are much more numerous than others, and fishermen will often lift a peck of oysters on one haul of the rake. They are to be found growing in clusters and single, varying in number from twenty to sixty-five of all sizes, each time the rake is lifted. The quantity of oysters in the Richibucto river far exceeds any other natural bed we have in the lower provinces. They were very plentiful in Harnett's cove, on Glencross shore, and down to Mundles point, on both sides of the river, and at the entrance of St. Nicholas river.

In St. Nicholas river, oysters were found about 3 miles from the mouth, growing on the sides of the channel, but the ground was very much softer and the oysters above the bridge were of the razor-fish kind; long, with thin, brittle shells. From the bridge down to St. Nicholas river, a distance of 4⅛ statute miles; they improved in shape and different, the shells being much more bulky, and most of them growing in clusters.

A great difference was noticed in the samples of the oysters taken from Big cove down to St. Nicholas river, a distance of 4⅛ statute miles; they improved in shape and appearance the farther down the river they were caught. Several shells were brought

to the surface covered with last year's spat, some of which I counted, there being 68, 57, 47, and 42, respectively, on each shell, and others varying in the same proportion. Spat was also noticed attached to sunken trees, pieces of bark, logs, sticks, stumps, and stones; in fact on everything with a rough surface, lying in the river.

The beds do not appear to be very deep; they vary in depth from 3 to 10 feet. Oysters have grown over the area on the south side of the channel at Big cove, where the water is shallower, and the bottom is comparatively soft; and shells are found here in places to a depth of from 4 to 10 feet. Mud-digging is carried on here, from time to time, by the farmers living along the shores, who obtain mud to fertilize their land. Sometimes a few oysters are found on the surface, but they have never been looked upon as being of any commercial value, and the farmers claim that they are of more value to be used by them as fertilizer than they are dying in the mud, which they eventually do if not removed by other means.

The farmers have found banks of oyster shells of various depths along the river, and have also found what are called "middle grounds." These are really old oyster beds, and are very few in number. Comparatively speaking, they are dead beds with a few live oysters on the top, the main oyster fishing being done on the edges of the channel. They have grown over with weeds, and the fishing there does not amount to anything. The farmers do not wish to make any inroads on the beds where good fishing exists, but it is next to impossible to dig mud in this river without taking a few live oysters.

The river, owing to its length, and the way in which it is protected by winding turns and by overhanging trees on both banks, has been endowed by nature with a never-failing fall of spat; and if the bed of the river were clean and firm, the results would be much more pronounced. It is a river which, in my opinion, can never be fished out. Of course, the oysters are of an inferior class, but will do for transplanting purposes.

Some years ago, Captain Fraser of the schooner *Maple Leaf* obtained a cargo of some 300 barrels of oysters from Harnet's cove alone, which were transplanted in Buctouche bay on private beds. An official of the Shemogue Oyster Company informed me in conversation, that in 1913 the company removed 1,800 barrels of oysters from Richibucto river, and in 1914, 2,200 barrels. Their average catch per day would be about 100 barrels, with about twenty men fishing; and I can safely state that the fact of the above quantity having been removed from the river will not make the slightest difference in its future output. In 1915, no oysters were removed for transplanting purposes.

The river covers a distance of 7½ miles from Chapel point to Molus river, and taking the average width of the river banks at 50 feet, would give a surface of 3,952,000 square feet. A rake is hauled over about nine square feet, obtaining on an average fifty oysters each time; and allowing 800 oysters to the barrel, the quantity obtained would be about 27,000 barrels, which is a very conservative estimate. There are, very probably, over 50,000 barrels of oysters in Richibucto river to-day, and I do not consider that any material loss would be noticed if three or four thousand barrels were removed from the above area annually; indeed, I am of the opinion that by removing the above quantity, the quality of those remaining would be improved.

On finishing my work in Richibucto river, I proceeded to Kouchibouguac, arriving there on the 30th July.

KOUCHIBOUGUAC RIVER AND BAY.

I went up the Kouchibouguac river as far as it was navigable. Some nine or ten years ago the dam, which was situated above the bridge at Kouchibouguac village, broke away, causing thousands of tons of sand to be deposited in the river and carried down stream by the current, and blocking the channel in several places. Saw-dust from the saw-mills has been dumped into the river for years past, and this has settled all

over the river-bed, and has, no doubt, killed all the oysters that were in the river at the time.

I examined the whole length of the river and found several dead oyster beds which have been cut up by the farmers, who used them as fertilizer; and I was informed by some of the men who dug the mud that they could generally work down to a depth of 16 or 18 feet through the shells until they come to a flat stone bottom at the bed of the river. The trenches are now filled in with decayed sawdust, and soft mud, having a very offensive odour. The bottom of the river-bed is composed of soft mud and sawdust to a depth of two or three feet; while the shores are of a sandy nature, though beneath the surface there is black mud.

About three-quarters of a mile from the beach there is an old oyster bed which blocks the whole width of the channel, with less than 4 feet water over it. It is covered with mussels, and upon examination was found to contain no other form of life. The mud under the surface was very black and soft, and the smell was very obnoxious.

The channel of the river is narrow, and very winding and intricate, with a depth varying from 10 to 20 feet; while the mud flats on both sides of the river are very extensive and shallow, sometimes extending to nearly the opposite shore, and all very thickly covered with eelgrass.

I also visited Black river and found the channel very narrow and winding, and the bottom composed of a very soft mud. Inside the foreshore there is an extensive stretch of water composed chiefly of sandflats, covered with eelgrass, most of which are dry at low water, together with two or three narrow channels where there is deep water and a soft, sandy bottom of a shifting nature. At high tide a magnificent stretch of water is seen, while at low water nearly everything is bare.

Under existing conditions, I do not see any prospect of planting either quahaugs or oysters with success in these waters.

After finishing my examination here I proceeded to St. Louis.

SAINT LOUIS RIVER AND BAY.

I found St. Louis bay to consist of a large area of water, on the east side of which is the shore beach. At high tide it is a stretch of water about 5 or 6 miles long, and about a mile wide; but at low water it is one mass of flats composed of sand and very soft mud, and covered with eelgrass. Mussels were found to be growing here in large quantities, and starfish were very plentiful. The ice rests over the whole of these flats during the winter months.

The channel leading to the river is narrow, winding, and intricate; and the bottom is composed of shifting quicksands and soft mud; it is in no way suited for the cultivation of either quahaugs or oysters. I went as far north as the channel leading to Kouchibouguac bay, and as far south as Blacklands gully, but found it was difficult to get over the area in my row-boat. The entrances to these harbours are shallow, and liable to shift with any heavy gale. There is a narrow channel running parallel with the beach, but it is blocked up at each end with sand, and is termed a "blind" channel.

The river from St. Louis bridge down to the entrance covers a distance of about five miles, and has a soft muddy bottom covered with saw-dust A few scattered oyster beds were found along the edges of the channel, but most of the beds have been dug up by mud-diggers. The oysters found were of a fair size, the shells being very brittle and soft. As the water is too fresh, these small patches of oysters were found on areas not more than 4 or 5 feet square, and only in small quantities; and I cannot see any prospect for the future cultivation of oysters or quahaugs in these waters.

LOBSTER PATROL.

After finishing the above work I received instructions to assist Inspector Matheson in the protection of lobsters. My time was occupied in patrolling the Northumberland straits on both the Island and New Brunswick shores.

Sailed from Charlottetown on the first of September, and picked up seventeen traps off Canoe cove, P.E.I.

September 3—Picked up three long lines and fifteen traps between cape Egmont and West point.

September 7—Caught four lines and ninety-six traps between Caisie cape and cape Bald, New Brunswick. Took one line with 118 traps off Shemogue; also another line in same locality with fifty-seven traps.

September 9—Picked up line and thirty-seven traps off Cocagne, N.B.

September 18—Picked up one trap off Shediac.

September 20—Seized one long line and eleven traps close in shore off cape Bald.

September 21—Picked up one trap off Caisie cape.

October 5—Picked up five traps off Shemogue.

October 7—Seized sixty-five traps off cape Traverse. Proceeded to Charlottetown where I placed all the rope I had in the warehouse, and handed the same over to Inspector Matheson to be disposed of.

SHEDIAC, N.B.

According to instructions I then proceeded to examine the oyster beds here with a view to opening the same for public fishing. I found the bulk of the oysters to be of large size, with some of each year's growth on the beds. There was a quantity of eelgrass on the beds, and the bottom was in a dirty condition, owing to the fact that they had not been worked for some time. I took ninety-seven oysters with one haul of the dredge.

The effect of fishing on these beds at this time would be beneficial, as it would clean the shells and small oysters, and now that the oysters are full grown, it is unnecessary to leave them there any longer. I therefore recommended that oyster fishing be permitted to licensed fishermen from the 15th to the 30th October, and this recommendation was approved by the department. Each working day, from eight in the morning to three in the afternoon, the men were fishing on the beds, and they reported their day's catch to the *Ostrea,* which was stationed there during the whole time.

The following are the particulars:—

October	15—	154	men	fishing, caught	437 barrels.
"	16—	159	"	" "	399 "
"	18—	169	"	" "	297 "
"	19—	164	"	" "	193 "
"	20—	105	"	" "	101 "
"	21—	63	"	" "	47 "
"	22—	13	"	" "	7 "
"	23—Strong wind; no fishing.				
"	25—	11	men	fishing, caught	8 barrels.
"	26—	9	"	" "	$7\frac{1}{2}$ "

On account of fresh winds, especially as the oysters were becoming scarce, the men did not fish after the 26th.

The bulk of these oysters, amounting to 1,496 barrels, was taken from the Wilber bed; the other beds appear to be depleted. This bay, I may say, has a general tendency toward filling up, and I observe a marked difference since the first time I was at work on it in 1892.

Leaving Shediac, I proceeded to Charlottetown intending to examine the area in Caribou, N.S., but owing to the weather becoming so wild, it was decided to lay the *Ostrea* up and place her into her winter quarters.

I am, sir,

Your obedient servant,

ERNEST KEMP,
Oyster Expert.

APPENDIX 11.

FISHING BOUNTIES.

The payments made for this service are under the authority of the Revised Statutes, 1906, chap. 46, intituled: "An Act to encourage the development of the Sea Fisheries, and the building of fishing vessels," which provides for the payment of the sum of $160,000 annually, under regulations to be made from time to time by the Governor General in Council.

REGULATIONS.

The regulations governing the payment of fishing bounties were established by the following Order in Council:—

AT THE GOVERNMENT HOUSE AT OTTAWA.
Thursday, the 30th day of September, 1915.

PRESENT :

HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

His Royal Highness the Governor in Council, by and with the advice of the King's Privy Council for Canada, in virtue of the provisions of Section 7 of chapter 46 of the Revised Statutes of Canada, "An Act to encourage the development of the Sea Fisheries and the building of fishing vessels", is pleased to order, and it is hereby ordered, that the Regulations governing the payment of fishing bounties, as amended by Order in Council of the 22nd February, 1911, shall be and the same are hereby rescinded and the following substituted in lieu thereof:—

1. Resident Canadian fishermen who have been engaged in deep-sea fishing in Canadian vessels or boats for fish other than shell-fish, salmon and shad, or fish taken in rivers or mouths of rivers, for at least three months, and have caught not less than 2,500 pounds of sea fish, shall be entitled to a bounty; provided always that no bounty shall be paid to men fishing in boats measuring less than 13 feet keel, and not more than 3 men (the owner included) will be allowed as claimants in boats under 20 feet.

2. No bounty shall be paid upon fish caught in trap-nets, pound-nets and weirs, nor upon the fish caught in gill-nets fished by persons who are pursuing other occupations than fishing, and who devote merely an hour or two daily to fishing these nets, but are not, as fishermen, steadily engaged in fishing.

3. Only one claim will be allowed in each season, even though the claimant may have fished in two vessels, or in a vessel and a boat or in two boats.

4. The owners of boats measuring not less than 13 feet keel, whether propelled by oars, sails or other motive power, which have been engaged during a period of not less than three months in deep-sea fishing for fish other than shell-fish, salmon or shad, or fish taken in rivers or mouths of rivers, shall be entitled to a bounty on each such boat.

5. Canadian registered vessels, owned and fitted out in Canada, of ten tons and upwards (up to eighty tons) by whatever means propelled, contained within themselves which have been exclusively engaged during a period of not less than three months in the catching of sea fish, other than shell-fish, salmon or shad, or fish taken in rivers or mouths of rivers, shall be entitled to a bounty to be calculated on the registered ton-

nage, which shall be paid to the owner or owners: provided that vessels known as "Steam Trawlers" operating "Beam," "Otter" or other such trawls, shall not be eligible for any such bounty.

6. Owners or masters of vessels intending to fish and claim bounty on their vessels must, before proceeding on fishing voyage, procure a license from the nearest Collector of Customs or Fishery Overseer, said license to be attached to the claim when sent in for payement.

7. The date when a vessel's fishing operations shall be considered as having begun shall be the day upon which she sails from port on her fishing voyage, after the license has been procured, and the date upon which her fishing season shall end shall be the day upon which she arrives in port from her last fishing voyage prior to the 1st December. The three months during which a vessel must have been engaged in fishing, to be entitled to the bounty, shall not include such periods as she may have been lying in port, provided that not more than three days may be permitted for the sale, transfer or discharge of her cargo of fish and refitting.

8. Dates and localities of fishing must be stated in the claim, as well as the quantity and kinds of sea fish caught.

9. Ages of men must be given. Boys under 14 years of age are not eligible as claimants.

10. Claims must be sworn to as true and correct in all their particulars.

11. Claims must be filed on or before the 30th November in each year.

12. Officers authorized to receive claims will supply the requisite blanks free of charge, and after certifying the same will transmit them to the Department of the Naval Service.

13. No claim in which an error has been made by the claimant or claimants shall be amended after it has been signed and sworn to as correct.

14. Any person or persons detected making returns that are false or fraudulent in any particular, may be debarred from any further participation in the bounty, and be liable to be prosecuted according to the utmost rigour of the law.

15. The amount of the bounty to be paid to fishermen and owners of boats and vessels will be fixed from time to time by the Governor in Council.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

The bounty for the year 1915 was distributed on the basis authorized by the following Order in Council, approved by His Royal Highness the Governor General on the 19th January, 1916.

His Royal Highness the Governor General in Council is pleased to order, and it is hereby ordered that the sum of one hundred and sixty thousand dollars, payable under the provisions of chapter 46 of the Revised Statutes of Canada, 1906, intituled: "An Act to encourage the development of the Sea Fisheries and the building of fishing vessels," be distributed for the year 1915-16, upon the following basis:—

Vessels: The owners of the vessels entitled to receive bounty, shall be paid one dollar ($1) per registered ton, provided, however, that the payment to the owner of any one vessel shall not exceed the sum of eighty dollars ($80), and all vessel fishermen entitled to receive bounty shall be paid the sum of five dollars and ninety cents ($5.90) each.

Boats: Fishermen engaged in fishing in boats who shall also have complied with the regulations entitling them to receive bounty shall be paid the sum of three dollars and forty-five cents ($3.45) each, and the owners of fishing boats shall be paid one dollar ($1) per boat.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

During the year 1915, 14,877 claims were received, being an increase of 596 over 1914, while the number paid was 14,857, an increase of 641 over the previous year.

The amount of bounty paid to vessels and their crews is $59,676.70, and boats and boat fishermen $99,064.35, making the total payments for the year.

Bounty was paid to 941 vessels, the aggregate tonnage being 23,638 tons, being a decrease of 14 vessels and 173 tons over 1914. The number of vessel fishermen receiving bounty is 6,107, a decrease of 15.

Bounty was also paid to 13,926 boats and 24,670 fishermen, an increase of 665 boats and 1,842 men, as compared with the previous year.

DETAILED STATEMENT of Fishing Bounty Claims received and paid during the year 1915.

Provinces.	Counties.	Number of Claims.			
		Received.	Rejected.	Held in abeyance.	Paid.
Nova Scotia	Annapolis	198			198
	Antigonish	182	1		181
	Cape Breton	530	2		528
	Cumberland	8			8
	Digby	463	2		461
	Guysborough	936	3		933
	Halifax	1445			1445
	Inverness	491			491
	Kings	64			64
	Lunenburg	921			921
	Pictou	100			100
	Queens	206			206
	Richmond	578			578
	Shelburne	762			762
	Victoria	363			363
	Yarmouth	192			192
	Totals	7,439	8		7,431
New Brunswick	Charlotte	462			462
	Gloucester	543	5		538
	Kent	43			43
	Northumberland	6			6
	Restigouche	2			2
	St. John	59			59
	Westmorland	1			1
	Totals	1,116	5		1,111
Prince Edward Island	Kings	525			525
	Prince	507	1		506
	Queens	114			114
	Totals	1,142	1		1,145
Quebec	Bonaventure	1,109	3		1,106
	Gaspé	3,211	2		3,209
	Rimouski	112			112
	Saguenay	744	1		743
	Totals	5,175	6		5,170
	Grand totals	14,871	20		14,857

Detailed Statement of Fishing Bounties paid to Vessels and Boats during the year 1915.

Provinces.	Counties.	Number of Vessels.	Tonnage.	Average Tonnage.	Number of Men.	Amount paid.	Number of Boats.	Number of Men.	Amount paid.	Total Bounty Paid to Vessels and Boats in 1915.
						$ cts.			$ cts.	$ cts.
Nova Scotia	Annapolis	5	168	33·70	42	415 80	193	309	1,259 05	1,674 85
	Antigonish	2	27	13·50	5	56 50	179	254	1,055 30	1,111 80
	Cape Breton	20	293	14·65	83	783 20	508	893	3,590 05	4,373 25
	Cumberland						8	14	56 30	56 30
	Digby	19	828	43·57	199	2,902 10	452	801	3,215 65	5,217 75
	Guysboro	56	862	15·39	241	2,283 90	877	1,441	5,848 45	8,132 35
	Halifax	88	1,707	19·39	459	4,415 10	1,357	1,845	7,722 45	12,137 55
	Inverness	41	549	13·36	185	1,640 50	450	876	3,472 20	5,112 70
	Kings	1	12	12·00	4	35 60	63	94	387 30	422 90
	Lunenburg	201	10,367	51·07	2,499	25,111 10	720	911	3,862 95	28,974 05
	Pictou						100	127	538 15	538 15
	Queens	15	187	12·46	45	452 50	191	311	1,263 95	1,716 45
	Richmond	37	877	24·24	205	2,086 50	541	914	3,694 30	5,780 80
	Shelburne	59	1,201	20·38	325	3,118 50	703	1,256	5,036 20	8,154 70
	Victoria	13	184	14·15	60	538 00	350	541	2,216 45	2,754 45
	Yarmouth	35	1,323	37·80	339	3,323 10	157	282	1,129 90	4,453 00
	Totals	592	18,585	31·56	4,691	46,262 40	6,849	10,865	44,348 65	90,611 05
New Brunswick	Charlotte	21	344	16 38	80	818 00	441	685	2,804 25	3,622 25
	Gloucester	273	3,790	13·51	1,119	10,397 00	265	636	2,459 60	12,856 60
	Kent	12	129	10·75	27	288 30	31	56	224 20	512 50
	Northumberland	3	36	12·00	10	95 00	3	6	23 70	118 70
	Restigouche						2	2	8 90	8 90
	St. John	5	98	19·60	14	180 60	54	68	288 60	469 20
	Westmorland	1	10	10·00	2	21 80				21 80
	Totals	315	4,407	13·99	1,252	11,800 70	796	1,453	5,809 25	17,609 95
Prince Edward Island	Kings	11	259	23·54	45	524 50	514	768	3,164 60	3,689 10
	Prince	5	73	14·60	20	191 00	501	1,154	4,487 70	4,678 70
	Queens	4	47	11·75	15	135 50	110	261	1,010 65	1,146 15
	Totals	20	379	18·95	0	851 00	1,125	2,183	8,662 95	9,513 95

DETAILED STATEMENT of Fishing Bounties paid to Vessels and Boats during the year 1915.—*Concluded.*

Provinces.	Counties	Number of Vessels.	Tonnage.	Average Tonnage.	Number of Men.	Amount paid.	Number of Boats.	Number of Men.	Amount paid.	Total Bounty Paid to Vessels and Boats in 1915.
						$ cts.			$ cts.	$ cts.
Quebec	Bonaventure	1	15	15·00	3	32·70	1,105	2,013	8,050 25	8,082 95
	Gaspé	11	217	19·72	71	635 90	3,198	6,537	25,767 70	26,403 60
	Rimouski	....	....	....	....	....	112	159	661 35	661 35
	Saguenay	2	35	17·50	10	94·00	741	1,456	5,764 20	5,858 20
	Totals	14	267	19·07	84	762·60	5,156	10,165	40,243 50	41,006 10
	Grand totals	941	23,638	25·12	,6107	59,676·70	13,926	24,670	99,064 35	158,741 05

GENERAL STATISTICS.

The fishing bounty was first paid in 1882.

The payments were made each year on the following basis:

1882, vessels $2 per ton, one-half to the owner and the other half to the crew; boats at the rate of $5 per man, one-fifth to the owner and four-fifths to the men.

1883, vessels $2 per ton, and boats $2.50 per man, distributed as in 1882.

1884, vessels $2 per ton as in 1882 and 1883.

Boats from 14 to 18 feet keel, $1; from 18 to 25 feet keel, $1.50; from 25 feet upwards, $2. Boat fishermen, $3.

1885, 1886 and 1887, vessels, $2 per ton paid as formerly. Boats the same as in 1884, with the admission of boats measuring 13 feet keel, and fishermen, $3.

1888, vessels $1.50 per ton, paid as formerly. Boats, the same as 1885, 1886 and 1887.

1889, 1890 and 1891, vessels $1.50 per ton as in 1888. Boats $1 each. Boat fishermen, $3.

1892, vessels $3 per ton, paid as formerly. Boats $1 each. Boat fishermen $3.

1893, vessels $2.90 per ton, paid as formerly. Boats $1 each. Boat fishermen $3.

1894, vessels $2.70 per ton, paid as formerly. Boats $1 each. Boat fishermen $3.

1895, vessels $2.60 per ton, paid as formerly. Boats $1 each. Boat fishermen $3.

1896, vessels $1 per ton, which was paid to the owners, and vessel fishermen $5 each, clause No. 5 of the regulations having been amended accordingly. Boats $1 each, and boat fishermen $3.50 each.

	Vessels.	Men.	Boats.	Men.
1897	$1 00 per ton.	$6 00 each.	$1 00 each.	$3 50 each.
1898	1 00 "	6 50 "	1 00 "	3 50 "
1899	1 00 "	7 00 "	1 00 "	3 50 "
1900	1 00 "	6 50 "	1 00 "	3 50 "
1901	1 00 "	7 00 "	1 00 "	3 50 "
1902	1 00 "	7 25 "	1 00 "	3 80 "
1903	1 00 "	7 30 "	1 00 "	3 90 "
1904	1 00 "	7 15 "	1 00 "	3 75 "
1905	1 00 "	7 10 "	1 00 "	3 65 "
1906	1 00 "	7 10 "	1 00 "	3 75 "
1907	1 00 "	7 40 "	1 00 "	4 00 "
1908	1 00 "	7 25 "	1 00 "	3 90 "
1909	1 00 "	7 50 "	1 00 "	4 25 "
1910	1 00 "	7 60 "	1 00 "	4 30 "
1911	1 00 "	7 15 "	1 00 "	4 10 "
1912	1 00 "	6 90 "	1 00 "	3 95 "
1913	1 00 "	6 70 "	1 00 "	3 95 "
1914	1 00 "	6 40 "	1 00 "	3 65 "
1915	1 00 "	5 90 "	1 00 "	3 45 "

Since 1882, 28,948 vessels, totalling 914,554 tons, have received the bounty. The total number of vessel fishermen who received bounty is 207,553, being an average of 7·1698 per vessel.

The total number of boats to which bounty was paid since 1882 is 449,288, and the number of fishermen 804,188. Average number of men per boat, 1·7899.

The highest bounty paid per head to vessel fishermen was $21.75, in 1893; the lowest, 83 cents, while the highest to boat fishermen was $4.30, the lowest $2.

COMPARATIVE STATEMENT by Provinces for the Years 1882 to 1915, inclusive, showing: (1) Total number of fishing Bounty Claims received and paid from 1882 to 1915 inclusive.

Year.	Nova Scotia.		New Brunswick.		P. E. Island.		Quebec.		Totals.	
	Received.	Paid.	Received.	Paid.	Received.	Paid.	Received.	Paid.	Received.	Paid.
1882...	6,730	6,613	1,257	1,142	1,169	1,100	3,162	3,117	12,318	11,972
1883...	7,171	7,076	1,693	1,579	1,138	1,106	3,602	3,325	13,604	13,086
1884...	7,007	6,930	1,252	1,224	923	885	3,470	3,429	12,652	12,468
1885...	7,646	7,599	1,609	1,588	1,117	1,025	3,943	3,912	14,315	14,124
1886...	7,639	*7,702	1,767	1,763	1,131	1,080	4,275	*4,355	14,812	14,900
1887...	8,262	8,227	1,975	1,958	1,201	1,126	4,138	4,105	15,576	15,416
1888...	8,481	8,429	2,065	2,026	1,153	834	4,328	4,310	16,027	15,599
1889...	8,816	8,523	2,428	2,392	1,211	*1,511	4,664	4,652	17,119	17,078
1890...	9,337	*9,429	2,522	2,469	1,352	1,257	4,860	4,804	18,071	17,959
1891...	10,242	10,063	2,831	2,084	1,482	1,446	5,108	4,913	19,663	18,506
1892...	8,272	8,186	1,067	1,001	1,065	1,051	4,425	4,204	14,829	14,442
1893...	7,926	7,844	967	881	1,027	1,012	4,059	3,898	13,979	13,635
1894...	8,640	8,600	925	911	983	963	3,948	3,876	14,496	14,350
1895...	8,835	8,825	979	975	1,009	*1,025	3,904	*3,955	14,727	14,780
1896...	8,597	8,562	1,137	1,064	1,111	*1,120	4,366	4,229	15,211	14,975
1897...	8,450	8,418	1,042	991	1,175	1,171	4,180	4,149	14,847	14,729
1898...	8,446	8,347	934	917	1,143	*1,145	4,156	4,092	14,679	14,501
1899...	7,894	7,754	849	825	1,016	947	4,134	4,102	13,893	13,628
1900...	7,484	7,452	904	904	1,119	*1,169	4,264	4,251	13,771	13,776
1901...	7,346	7,344	829	826	941	957	4,277	4,267	13,393	13,374
1902...	6,710	6,671	802	794	913	912	4,371	4,346	12,796	12,723
1903...	6,297	6,284	832	830	978	974	4,110	4,090	12,217	12,178
1904...	6,750	6,732	879	866	1,027	994	4,095	4,079	12,751	12,671
1905...	7,034	7,018	881	873	921	921	4,350	4,329	13,186	13,141
1906...	7,434	7,415	930	923	918	916	4,251	4,249	13,533	13,503
1907...	7,124	7,087	904	895	1,000	984	4,239	4,227	13,267	13,193
1908...	7,690	7,648	1,002	988	1,030	993	4,250	4,212	13,972	13,841
1909...	7,276	7,250	834	830	877	872	4,024	4,004	13,011	12,956
1910...	6,670	6,659	915	903	909	898	4,159	4,150	12,644	12,610
1911...	6,735	6,722	923	905	1,001	877	4,220	4,141	12,879	12,645
1912...	6,717	6,709	904	890	1,052	*1,142	4,299	4,223	12,972	12,964
1913...	6,962	6,942	960	957	1,169	*1,195	4,321	*4,439	13,412	13,533
1914...	7,360	7,349	1,083	1,081	1,225	1,216	4,613	4,570	14,281	14,216
1915...	7,439	7,431	1,116	1,111	1,116	1,145	5,176	5,170	14,877	14,857
Totals.	261,419	259,840	41,997	40,366	36,623	37,949	143,741	142,174	483,780	478,329

* Includes a number of claims held over from previous year.

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(2) NUMBER of vessels, tonnage and number of men who received Bounty in each year

Year.	Nova Scotia.			New-Brunswick.			P. E. Island.			Quebec.			Totals.		
	No. of Vessels.	Tonnage.	No. of Men.	No. of Vessels.	Tonnage.	No. of Men.	No. of Vessels.	Tonnage.	No. of Men.	No. of Vessels.	Tonnage.	No. of Men.	No. of Vessels.	Tonnage.	No. of Men.
1882....	588	22,841	5,343	120	2,171	531	15	389	74	63	2,210	538	786	27,611	6,486
1883....	700	29,788	6,238	126	2,102	496	16	450	66	62	2,236	443	904	34,576	7,243
1884....	700	29,828	6,327	139	2,289	560	16	582	92	56	1,965	382	911	34,664	7,361
1885 ...	629	27,709	5,897	128	2,120	496	19	597	113	55	1,791	317	831	32,217	6,823
1886....	562	25,375	5,022	145	2.628	520	32	1,071	215	52	1,730	320	791	30,804	6,077
1887....	566	24,520	4,900	154	2,889	563	38	1,677	338	54	1,883	334	812	30,969	6,135
1888....	589	26,008	5,450	150	2,545	544	37	1,245	249	51	1,842	388	827	31,640	6,631
1889....	597	27,123	5,684	153	2,590	565	35	1,274	239	48	1,729	330	833	32,716	6,818
1890....	540	23,955	4,935	133	2,129	447	32	1,002	203	34	1,182	220	739	28,268	5,805
1891....	527	22,780	4,618	124	2,051	411	27	778	155	27	924	168	705	26,533	5,352
1892....	507	22,279	4,611	108	1,683	343	30	983	139	23	803	159	668	25,748	5,252
1893....	536	23,195	4,780	210	2,922	634	27	910	151	32	952	179	805	27,979	5,744
1894....	602	24,735	5,077	238	3,189	721	21	594	114	38	1,066	178	899	29,584	6,090
1895....	603	25,018	5,184	238	3,107	764	27	769	129	39	1,262	173	907	30,156	6,250
1896....	553	23,415	4,607	250	3,337	800	23	656	114	36	1,143	144	862	28,551	5,665
1897....	507	21,323	4,829	239	3,079	816	20	490	109	24	833	116	790	25,725	5,870
1898....	505	20,868	4,840	239	3,155	859	24	561	125	16	524	77	784	25,108	5,901
1899....	519	22,538	5,323	238	3,131	885	15	373	76	17	497	78	789	26,539	6,362
1900....	523	22,474	5,352	234	2,969	890	29	737	153	14	459	76	802	26,639	6,471
1901....	508	21,469	5,158	242	3,229	872	23	541	115	13	366	69	786	25,605	6,214
1902 ...	505	21,248	5,126	249	3,293	972	28	630	135	13	350	51	795	25,521	6,284
1903....	546	21,992	5,173	259	3,454	971	36	765	169	10	290	48	851	26,501	6,361
1901....	552	21,285	5,040	257	3,429	981	30	594	126	15	382	73	854	25,690	6,220
1905....	620	21,240	5,238	264	3,600	1,035	28	587	125	10	259	56	922	25,686	6,454
1906....	644	20,008	4,891	273	3,753	1,066	32	732	147	8	139	33	957	24,632	6,137
1907 ...	612	17,041	4,178	265	3,720	1,010	41	916	178	9	154	34	927	21,831	5,400
1908....	616	17,804	4,364	269	3,672	1,034	34	643	146	6	87	25	925	22,206	5,563
1909 ...	591	16,180	3,919	247	3,344	935	30	572	113	6	99	26	874	20,195	4,993
1910 ..	588	17,567	4,294	249	3,321	976	31	612	117	8	178	37	876	21,678	5,424
1911....	664	19,555	4,931	266	3,528	1,025	27	540	115	8	177	41	965	23,800	1,107
1912...	668	20.649	4,983	255	3,336	987	33	648	131	9	237	46	965	24,900	6,112
1913....	594	18.288	4,484	285	3,970	1,074	25	466	91	6	109	30	910	22,833	6.147
1914....	614	19,008	4,789	309	4,241	1,198	20	349	78	12	213	57	955	23,811	5,679
1915....	592	18,585	4,691	315	4,107	1,252	20	379	89	14	267	84	941	23,638	6,107
Totals.	19,769	757,681	170,276	7,370	104383	37,233	921	24,112	4,714	888	28,368	5,330	28,948	914,554	207,553

(3) NUMBER of Boats and Boat Fishermen who received Bounty in each year.

Year.	Nova Scotia.		New Brunswick.		Prince Edward Island.		Quebec.		Totals.	
	No. of Boats.	No. of Men.	No. of Boats.	No. of Men.	No. of Boats.	No. of Men.	No. of Boats.	No. of Men.	No. of Boats.	No. of Men.
1882	6,043	12,130	1,024	2,530	1,087	3,070	3,071	5,716	11,225	23,446
1883	6,458	13,553	1,453	3,309	1,098	3,106	3,266	6,188	12,275	26,156
1884	6,257	12,669	1,086	2,505	869	2,346	3,344	6,416	11,556	23,936
1885	6,970	13,396	1,460	3,254	1,006	2,606	3,857	7,485	13,293	26,741
1886	7,140	13,351	1,618	3,567	1,048	2,547	4,303	7,981	14,109	27,446
1887	7,662	13,997	1,804	3,994	1,088	2,711	4,051	7,550	14,605	28,252
1888	7,840	14,115	1,876	4,148	797	2,141	4,259	7,852	14,772	28,256
1889	7,926	14,118	2,237	5,032	1,475	3,568	4,602	8,807	16,240	31,525
1890	8,886	15,738	2,324	5,242	1,192	3,024	4,766	9,241	17,168	33,245
1891	9,525	16,552	1,928	4,126	1,383	3,427	4,865	9,402	17,701	33,507
1892	7,679	12,307	893	1,765	1,021	2,047	4,181	7,693	13,774	23,812
1893	7,308	11,748	671	1,314	985	1,962	3,866	7,245	12,830	22,269
1894	7,956	12,899	661	1,281	913	1,813	3,821	7,139	13,351	23,132
1895	8,222	13,106	737	1,434	998	2,141	3,916	7,877	13,873	24,558
1896	8,008	12,454	814	1,553	1,095	2,126	4,189	7,688	14,106	23,821
1897	7,911	12,542	752	1,351	1,151	2,147	4,125	7,572	13,939	23,612
1898	7,872	12,438	678	1,237	1,121	2,199	4,076	7,627	13,747	23,501
1899	7,235	11,305	587	1,027	932	1,710	4,085	7,696	12,839	21,738
1900	6,927	10,645	670	1,184	1,140	2,198	4,237	8,004	12,974	22,031
1901	6,836	10,464	584	1,001	914	1,735	4,254	8,017	12,588	21,217
1902	6,166	9,442	545	966	884	1,638	4,333	8,180	11,928	20,226
1903	5,738	8,775	571	964	938	1,722	4,080	7,688	11,327	19,149
1904	6,180	9,556	609	1,082	964	1,792	4,064	7,648	11,817	20,078
1905	6,398	9,822	609	1,047	893	1,630	4,319	8,002	12,219	20,501
1906	6,771	10,138	650	1,139	884	1,648	4,241	7,946	12,546	20,871
1907	6,475	9,739	630	1 158	943	1,750	4,218	7,873	12,266	20,520
1908	7,032	10,685	719	1,365	959	1,810	4,206	7,809	12,916	21,669
1909	6,659	10,163	583	1,069	842	1,583	3,998	7,314	12,082	20,129
1910	6,071	9,353	654	1,195	867	1,672	4,142	7,451	11,734	19,671
1911	6,058	9,403	639	1,048	850	1,574	4,133	7,682	11,680	19,707
1912	6,040	9,324	635	1,096	1,109	2,131	4,214	7,860	11,998	20,411
1913	6,348	9,816	672	1,151	1,170	2,237	4,433	8,353	12,623	21,557
1914	6,735	10,575	772	1,330	1,196	2,271	4,558	8,682	13,261	22,828
1915	6,849	10,869	796	1,453	1,125	2,183	5,156	10,165	13,926	24,654
Totals	240,181	397,187	32,941	66,917	34,937	74,255	141,229	265,819	449,297	804,188

(4) Total Number of Men who received Bounty in each year.

Year.	Nova Scotia.	New Brunswick.	P. E. Island.	Quebec.	Totals.
	No. of Men.	No. of Men.	No. of Men.	No. of Men.	
1882	17,473	3,061	3,144	6,254	29,932
1883	19,791	3,805	3,172	6,631	33,399
1884	18,996	3,065	2,438	6,798	31,297
1885	19,293	3,750	2,719	7,802	33,564
1886	18,373	4,087	2,762	8,301	33,523
1887	18,897	4,557	3,049	7,884	34,387
1888	19,565	4,692	2,390	8,240	34,887
1889	19,802	5,597	3,807	9,137	38,343
1890	20,673	5,689	3,227	9,461	39,050
1891	21,170	4,537	3,582	9,570	38,859
1892	16,918	2,108	2,186	7,852	29,064
1893	16,528	1,948	2,113	7,424	28,013
1894	17,976	2,002	1,927	7,317	29,222
1895	18,290	2,198	2,270	8,050	30,808
1896	17,061	2,353	2,240	7,832	29,486
1897	17,371	2,167	2,256	7,688	29,482
1898	17,278	2,096	2,324	7,704	29,402
1899	16,628	1,912	1,786	7,774	28,100
1900	15,997	2,074	2,351	8,080	28,502
1901	15,622	1,873	1,850	8,086	27,431
1902	14,568	1,938	1,773	8,231	26,510
1903	13,948	1,935	1,891	7,736	25,510
1904	14,596	2,063	1,918	7,721	26,298
1905	15,060	2,082	1,755	8,058	26,955
1906	15,029	2,205	1,795	7,979	27,008
1907	13,917	2,168	1,928	7,907	25,920
1908	15,049	2,399	1,950	7,834	27,232
1909	14,082	2,004	1,696	7,340	25,122
1910	13,547	2,171	1,789	7,488	24,995
1911	14,331	2,073	1,689	7,723	25,819
1912	14,307	2,083	2,262	7,906	26,558
1913	14,300	2,225	2,328	8,383	27,235
1914	15,364	2,528	2,349	8,709	28,950
1915	15,560	2,765	2,263	10,249	30,777
Total	567,363	94,150	78,979	271,149	1011,641

(5) Total annual payments of Fishing Bounty.

Year.	Nova Scotia.	New Brunswick.	P. E. Island.	Quebec.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1882	106,098 72	16,997 00	16,137 00	33,052 75	172,285 47
1883	89,432 50	12,395 20	8,577 14	19,940 01	130,344 85
1884	104,934 09	13,576 00	9,203 96	28,004 93	155,718 98
1885	103,999 73	15,908 25	10,166 65	31,464 76	161,539 39
1886	98,789 54	17,894 57	10,935 87	33,283 61	160,903 59
1887	99,622 03	19,699 65	12,528 51	31,907 73	163,757 92
1888	89,778 90	18,454 92	9,092 96	32,858 75	150,185 53
1889	90,142 51	21,026 79	13,994 53	33,362 71	158,526 54
1890	91,235 64	21,108 33	11,686 32	34,210 72	158,241 01
1891	92,377 42	17,235 96	12,771 30	34,507 17	156,891 85
1892	105,410 39	10,864 61	9,782 79	29,694 35	159,752 14
1893	108,060 67	12,524 09	9,328 62	28,320 72	158,234 10
1894	111,460 03	12,690 80	7,875 79	28,040 18	160,066 80
1895	110,765 27	12,919 32	9,285 13	30,598 27	163,567 99
1896	98,048 95	13,602 88	9,745 50	32,992 44	154,389 77
1897	102,083 50	13,454 50	9,809 00	32,157 00	157,504 00
1898	103,730 00	13,746 00	10,188 00	31,795 00	159,459 00
1899	106,598 50	13,514 50	7,822 00	32,065 00	160,000 00
1900	101,448 00	13,562 50	10,589 00	33,203 00	158,802 50
1901	101,024 50	13,420 50	8,335 50	33,161 50	155,942 00
1902	100,455 70	14,555 80	8,716 55	36,125 45	159,853 50
1903	99,714 15	14,872 75	9,652 50	34,704 30	158,943 70
1904	99,286 44	15,110 80	9,179 35	33,651 65	157,228 24
1905	100,664 35	15,379 50	8,317 20	34,185 60	158,546 65
1906	99,518 80	16,247 55	8,839 40	34,410 00	159,015 75
1907	93,381 70	16,454 50	10,175 95	36,101 35	156,113 50
1908	98,156 20	17,203 75	9,708 90	34,931 05	159,999 90
1909	95,413 60	15,480 15	8,973 85	35,354 25	155,221 85
1910	96,468 20	16,531 05	9,557 80	36,609 70	159,166 75
1911	99,424 90	15,795 00	8,669 85	36,109 95	159,999 70
1912	97,904 25	15,109 75	11,119 00	35,863 40	159,996 40
1913	93,456 00	16,385 05	11,081 85	37,738 35	158,661 25
1914	94,999 51	17,536 50	10,339 65	36,717 45	159,584 14
1915	90,611 05	17,609 95	9,513 95	41,006 10	158,741 05
Totals	3,378,486 70	528,868 47	341,701 37	1,128,129 20	5,377,185 81

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List of Vessels which received Fishing Bounty, 1915-16.

PROVINCE OF NOVA SCOTIA.

ANNAPOLIS COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
107475	Ethel May	Digby	16	Frank Clayton	Parker's Cove	4	39 60
80803	Exenia	Windsor	18	Bernard Longmire	Hillsburn	6	53 40
133967	Grace Darling	Digby	45	Ansel Casey	Port Wade	17	145 30
126873	Myrtle L	"	47	Bernard Longmire	Hillsburn	14	129 60
94832	Venus	Weymouth	42	J. W. Snow	Port Wade	1	47 90

ANTIGONISH COUNTY.

130787	Cora Wells	Pt. Hawkesbury	13	John Monroe	Aulds Cove	2	24 80
111794	Volunteer	"	14	Henry Brow	Harbouran Bouche	3	31 70

CAPE BRETON COUNTY.

112376	Agnes	Arichat	15	William Martel	Main-à-Dieu	4	38 60
137877	Augustine B	Lunenburg	14	J. A. Borden	Port Morien	3	31 70
126561	Caberfeidgh	Sydney	12	Joseph Degaust	Alder Point	4	35 60
122188	Charles A. H	Arichat	10	Louis Longue	North Sydney	3	27 70
116343	Eva May	"	11	M. J. McPherson	"	3	28 70
116348	Florence M.	"	17	Wm. Gunderson	"	3	34 70
116883	Grayling	"	25	Elisha R. Lowe	"	5	54 50
130361	Gordon Martin	Sydney	16	John Kavanagh	New Waterford	3	33 70
121934	Jeannie & Annie	Louisburg	16	J. A. Gaudet	Louisburg	4	39 60
126569	Madona May	Sydney	16	J. N. Bonnar	Glace Bay	4	39 60
116350	Maggie T	Arichat	15	William Hayes	"	5	44 50
121803	Mary J	Yarmouth	10	William Hawley	Port Morien	4	33 60
107999	Maud S	Canso	12	James Wheeler	North Sydney	4	35 60
107375	Minnie B	Sydney	10	Malcolm Prince	Glace Bay	4	33 60
126568	M. E. Wherry	"	14	John Arsenault	Alder Point	5	43 50
115392	Nyanza	"	15	George Herridge	North Sydney	5	44 50
111799	Rosie G	Port Hawkesbury	16	John Gallant	Little Loraine	5	45 50
107318	St. Stephen	Halifax	19	E. M. Peters	South Port Morien	5	48 50
112386	Shamrock	Sydney	11	Andrew Cann	North Sydney	3	18 70
122184	Two Brothers	Arichat	19	Thomas Campbell	Main-à-Dieu	6	54 40

DIGBY COUNTY.

126873	Albert J. Lutz	Digby	80	H. Anderson	Digby	20	192 10
111528	Alert	"	11	Maude Trahan	Mavillette	2	22 80
107897	America	St. John	12	C. R. Comeau	Meteghan River		16 00
112102	Ariadne	"	48	D. C. Outhouse	Tiverton	12	118 80
122109	Bella	Yarmouth	18	F. B. Comeau	Meteghan River	2	29 80
116236	Cora May	Digby	64	C. E. Finigan	Freeport	16	158 40
126879	Dorothy G. Snow	"	80	J. E. Snow	Digby	28	245 20
126874	Dorothy M. Smart	"	80	H. Anderson	"	19	186 20
107604	Ema D	Weymouth	20	F. S. Doucette	Cape St. Mary	6	55 40
116446	Emerson Faye	Digby	47	Edward Hains	Freeport	12	117 80
121883	Fanny Rose	Yarmouth	15	F. J. Doucette	Cape St. Mary	4	38 60
126880	Gyno	Digby	10	Edwards Thomas	Westport	3	27 70
111838	Lavinia D	"	21	James Doucette	Cape St. Mary	6	56 40
133963	Lila Boutilier	"	80	A. Boutilier	Centreville	27	233 40
121816	Loren B. Snow	"	80	J. E. Snow	Digby		80 00
116650	Nora	Yarmouth	11	Phil. Doucette	Mavillette	4	34 60
111471	Quickstep	Digby	80	David Sproul	Digby	19	192 10
111835	Roxana	"	11	Jerry Mallet	Mavillette	2	22 80
100609	Swan	"	56	Edward Hains	Freeport	13	132 70

List of Vessels which received Fishing Bounty, 1915-16—Nova Scotia—*Con.*

GUYSBORO COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
121700	Agnes E.	Yarmouth	10	S. W. Horne	Dover	3	27 70
116344	Annie B. M	Arichat	18	Tho. Fanning	Canso	2	29 80
112016	Blanche	Canso	13	Mark Richard	Charlos Cove	3	30 70
126106	Bonnie B.	Lunenburg	19	Frank Hawes	Canso	5	48 50
112375	C. G. Munroe	Arichat	14	Vincent Richard	Charlos Cove	4	37 60
117060	Dorothy Aleta	Canso	11	Daniel Pitts	"	5	40 50
126112	Dorothy G.	Lunenburg	17	John Rhynold	Canso	4	40 60
126911	Edna H.	Halifax	17	R. L. Mosher	"	4	40 60
117054	Emma Jane	Canso	16	John George	White Head	6	51 40
137874	Etta L.	Lunenburg	23	Harry Laing	West Liscomb	7	64 30
116520	Evelyn	"	17	Almon Hawes	Canso	3	34 70
117093	Florence D.	Arichat	11	Robert Creamer	Phillips Harbour	4	34 60
107993	Florence May	Canso	10	Wm. Sullivan	Canso	3	27 70
112373	Flying Cloud	Arichat	13	Simon Mannett	Larry's River	3	30 70
107996	Green Linnet	Canso	12	Tho. Boudroit	Dover	6	47 40
126297	H.C.R.	"	18	Harry Kavanagh	Canso	4	41 60
122430	Hattie Maud	Halifax	16	J. J. Berrigan	"	5	45 50
126294	Horman Lee	Canso	17	Edwd. Kavanagh	"	5	46 50
126292	Irbessa	"	17	Thomas Hearn	"	5	46 50
112374	J. B. Saint	Arichat	18	Samuel Snow	Cole Harbour	3	35 70
116747	Jessie W	Halifax	12	Jacob Manuel	Canso	5	41 50
111910	Lizzie J. Greenleaf	Arichat	11	J. H. Richard	Charlos Cove	5	40 50
117097	Lizzie May	"	12	W. C. Richard	"	7	53 30
117100	Louisa Ellen	"	11	Angus Feltmate	White Head	3	28 70
117094	Maggie Alice	"	11	John Ghyse	Port Felix	4	34 60
126291	Margaret Kathleen	Canso	16	John Boudroit	Dover	5	45 50
111909	Margaret May	Arichat	12	S. C. Richard	Charlos Cove	5	41 50
126300	Mary Edna	Canso	15	Dennis Richard	"	6	50 40
111475	Mary Matilda	Arichat	15	W. J. Murphy	Larry's River	5	44 50
112379	Mary S.	"	18	A. D. Feltmate	Canso	4	41 60
126295	Mary W. Catherine	Canso	13	William Pelrine	Port Felix	5	42 50
107757	Mayflower	Charlettown	18	J. R. Lunsden	Canso	2	29 80
100450	Minto	Canso	18	H. A. Richard	Charlos Cove	4	41 60
126296	Murray R. Munroe	"	21	Thurlo Munroe	Cole Harbour	5	50 50
126299	Nina Clare	"	16	Charles O'Hara	Drum Head	3	33 70
131168	N.A.F.	Lunenburg	24	John Kennedy, sr.	Canso	5	53 50
126298	Petawawa	Canso	33	Frank Lohner	"	6	68 40
122233	R. H. Milford	Barrington	13	Harold Burke	Drum Head	3	30 70
112024	Rita S.	Canso	13	Wm. Shrader	Canso	4	36 60
126472	Shiloh	Halifax	22	C. A. Mosher	"	7	63 30
111413	Sigdrifa	Lunenburg	13	Alden Munroe	White Head	3	30 70
112023	Silver Bell	Canso	14	S. J. Pelrine	Larry's River	4	37 60
116884	Silver Swan	Arichat	20	C. H. Richard	Charlos Cove	6	55 40
112025	Squanto	Halifax	13	Freeman Casey	White Head	2	24 80
122317	Stanley Hubley	Lunenburg	17	J. J. Lukeman	Canso	2	28 80
117055	Thelma	Canso	15	Geo. Ryan, sr.	"	5	44 50
134501	Thos. J. Conway	"	17	J. M. Conway	White Head	6	52 40
116885	T. Lilly	Arichat	10	Levi Ehler	Queensport	3	27 70
116532	Togo	Lunenburg	14	Wm Peitzsch	Cole Harbour	3	31 70
130353	True Darling	Arichat	18	John Belfountain	Port Felix	4	41 60
107994	True Love	Canso	10	David Walsh	Canso	3	27 70
130357	Vennie May	Arichat	17	T. L. Richard	Charlos Cove	2	28 80
116887	Wenona	"	10	Wesley Munroe	Cole Harbour	3	27 70
126293	Winnie May	Canso	10	G. C. Jamieson	"	3	27 70
130721	Winnifred Marr	Lunenburg	17	Martin Meagher	Canso	3	34 70
122000	Zoraya	"	16	Louden Munroe	Cole Harbour	5	45 50

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List of Vessels which received Fishing Bounty, 1915-16, Province of Nova Scotia—*Continued.*

HALIFAX COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
94632	A. C. Greenwood	Shelburne	15	John Beaver	Spry Bay	3	32 70
135096	A. Hubley	Halifax	69	Ainsley Hubley	Hacketts Cove	14	151 60
130592	Adamantine	"	10	Tho. Conwey	Indian Harbour	2	21 80
126812	Adana C	"	17	Wm. Hubley	Spry Bay	3	34 70
133802	Adonia S	Lunenburg	18	J. C. Martin	Ketch Harbour	7	59 30
116526	Adelaide	"	13	Francis Gray	Pennant	4	36 60
134419	Adamandine	"	13	Arthur Fralick	Hacketts Cove	2	24 80
122302	Albata	"	20	Jas. Westhaver	Sober Island	4	43 60
130591	Aileen Gladys	Halifax	16	Wm. Siteman, et al	West Ship Harbour	3	33 70
130578	Alice M. C	Lunenburg	12	Creighton Covey	Indian Harbour	2	23 80
122422	Annie G. W	Halifax	17	Edward Markie	Sober Island	3	34 70
126380	Annie Hilton	"	10	John May, jr	Owls Head	5	39 50
133665	Arena	"	12	E. S. Marryatt	Pennant	3	29 70
116824	Avis Pauline	Barrington	12	P. M. Nickerson	Spry Bay	3	29 70
130571	Brenda C	Halifax	10	Arthur Zinck	Halifax	4	33 60
130574	C. L. Miller	Lunenburg	10	A. Zinck	West Dover	3	27 70
130954	Comet G	"	11	Herbert Little	Terence Bay	4	34 60
126033	D. C. Mullhall	Halifax	42	Geo. Pelham	Herring Cove	14	124 60
111428	Duchess	"	12	Richard Zinck	West Dover	4	35 60
130585	Edith Adele	"	33	Frank Martin	Ketch Harbour	9	86 10
122424	Ella May	"	57	Leander Hubley	Indian Harbour	12	127 80
130568	Ella M. Young	Lunenburg	12	Maynard Young	West Dover	3	29 70
90726	Ellen Maud	Halifax	16	Richard Drew	Terence Bay	7	57 30
117141	Etha May	"	11	Geo. Johnson	West Dover	3	28 70
130565	Ethel M. G	Lunenburg	11	Arthur Johnson	Indian Harbour	2	22 80
134060	Eunice F	"	15	R. W. Fleming	Ketch Harbour	8	62 20
130687	Eva E. L	"	11	Harvey Zinck	West Dover	3	28 70
133680	Eva G	Halifax	11	Caleb Gray	Sambro	3	28 70
133668	F. C. Twohig	"	10	Andrew Twohig	Pennant	3	27 70
100247	Fairy Queen	"	11	G. H. Nickerson	"	3	28 70
116290	Flora M. J	"	78	James Julien, et al	Grand Desert	17	178 30
130738	Francis Lenore	Lunenburg	12	Frank King	Boutiliers Cove	3	29 70
122282	G. M. Stephens	Shelburne	12	Lindsay Zwicker	Indian Harbour	2	23 80
107330	Gertie M. Star	Halifax	16	Arthur Day	West Jeddore	4	39 60
116731	Grand Desert	"	65	Martin Julien, et al	Grand Desert	17	165 30
116738	Gretta	"	14	Edwd. Drake	Clam Harbour	3	31 70
130584	Gladys E. B	"	24	Walter Brown	Herring Cove	5	53 50
111432	Gladys Elena	"	16	Chas. Twohig	Pennant	5	45 50
126817	Gladys G. Hart	"	27	J. L. Hart	Sambro	6	62 40
116287	Handy Andy	"	15	J. P. Westhaver	Sheet Hbr. Passage	3	38 60
112129	Hattie	Lunenburg	12	R. Beck	East Dover	4	35 60
130472	Hattie M. J	"	12	Richard Coolen	"	3	29 70
126374	Hazel Levy	Halifax	14	Cyrus Levy	Owls Head	3	31 70
100544	Helen Maud	"	26	Howard Jennox	East Jeddore	9	79 10
134400	Helen M. Coolen	Lunenburg	80	Lindsay Coolen	Hubbards Cove	19	192 10
133678	Helen Viola	Halifax	13	Howard Gray	Sambro	4	36 60
126373	Ideal	"	16	Chas. Schnare	Pennant	4	39 60
130577	Irene L	Lunenburg	11	W. C. Slaunwhite	Terence Bay	4	34 60
130594	I Wonder Y	Halifax	16	W. S. Henneberry	Sambro	7	57 30
126825	Joseph Earle	Lunenburg	29	R. A. Slaunwhite	Terence Bay	10	88 00
126136	Kathleen W	Halifax	22	R. L. Slaunwhite	"	11	86 90
133675	Leone V	"	11	J. J. Smith	Sambro	6	46 40
126915	Lola B	"	10	C. W. Boutilier	Spry Bay	3	27 70
131078	Lola R	Lunenburg	13	J. V. Reyno	Herring Cove	3	30 70
126132	Lottie V. M	Halifax	10	Isaac Morash	West Dover	4	33 60
130590	Margaret M. Gray	"	23	Angus Gray	Pennant	4	46 60
126916	Marion R	"	22	W. C. Power	East Jeddore	2	33 80
133667	Marjory N	"	11	H. W. Nickerson	Pennant	3	28 70
130595	Marona	"	25	Parker Bros	Owls Head	4	48 60

List of Vessels which received Fishing Bounty, 1915-16—Nova Scotia.—*Con.*

HALIFAX COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage	Name of Owner. or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
133669	Mary K	Halifax	12	W. H. Henneberry	Devils Island	2	23 80
131071	Mary Maude	Lunenburg	10	Elias Johnson	West Dover	2	21 80
131064	Mattapex	"	12	Chas. Scott	Indian Harbour	3	29 70
130821	Mianus	"	15	M. Duggan	East Dover	3	32 70
103539	Neva	Halifax	11	Hiram Marryatt	Pennant	3	28 70
131167	Ovila	Lunenburg	23	Gus. Henneberry	Sambro	6	58 40
130727	Peal Beatrice H.	"	32	Wm. Hubley	Indian Harbour	7	73 30
116745	Perseverance	Halifax	12	F. A. Boutilier	"	4	35 60
116749	Reliance	"	14	Jas. Howard	Terence Bay	6	49 40
96806	Rising Sun	"	28	Richard Christian	Upper Prospect	6	63 40
126823	Rosie L.	Lunenburg	20	Geo. Little	Terence Bay	10	79 00
122307	Sadie H	"	17	Horton Beaver	Harrigan Cove	4	40 60
137875	Sunny Day	"	11	Chas. Myra	West Dover	3	28 70
130722	Tacoma	Halifax	11	A. J. Wambolt	Indian Harbour	2	22 80
130949	Titus McLeod	Lunenburg	11	Jas. Berringer	West Dover	3	28 70
133661	Una E. Hart	Halifax	21	Jas. L. Hart	Sambro	7	62 30
122429	Uncas	"	11	Alex. Cook	"	5	40 50
131171	Valerie S	Lunenburg	15	J. P. Slaunwhite	Terence Bay	8	62 20
117142	Valkyria	Halifax	13	David Levy	Sober Island	4	36 60
130579	Victor S.	Lunenburg	11	Elias Wambolt	Indian Harbour	4	34 60
133666	Village Leaf	Halifax	78	John Wolfe, et al	Grand Desert	17	178 30
126912	Viola G. Hartlin	"	25	Peter Hartlin, sr	East Jeddore	8	72 20
126917	Violet C	"	14	J. H. Smith	Sambro	4	37 60
130566	Violet F.	Lunenburg	12	Irvin Richardson	Indian Harbour	2	23 80
133673	Violet M. Hutt	Halifax	23	Richard Hutt, et al	Owls Head	5	52 50
134392	Vivian C	Lunenburg	10	Abraham Cleveland	West Dover	3	27 70
116283	Vixen	Halifax	15	Henry MacKenzie	Gerrards Island	3	32 70
126478	Willeta	"	15	Joseph Gray	Sambro	6	50 40
130600	Willie Roy	"	13	Nathan Duggan	Upper Prospect	3	30 70

INVERNESS COUNTY.

96778	Campania	Pt. Hawkesbury	11	Robin, Jones & Whitman	Eastern Harbour	4	34 60
126575	Cheticamp	"	10	Leon L. Chiasson	"	4	33 60
103325	Elizabeth Ann	"	11	David Bourgeois	"	4	34 60
130781	Flora Matthews	"	16	Matthews & Scott	"	5	45 50
122086	Florence	Charlottetown	14	C. & D. Aucoin	"	5	43 50
103317	Flying Star	Pt. Hawkesbury	11	S. Bellefontaine	"	4	34 60
130945	Gladys Irena	Lunenburg	16	D. A. Cormier	Grand Etang	6	51 40
126573	Great Dipper	Pt. Hawkesbury	10	J. R. Doucett	"	3	27 70
126577	Gros Ours	"	14	Emilien LeBlanc	"	5	43 50
126579	Hattie L. B.	"	12	Matthews & Scott	Eastern Harbour	5	41 50
130785	J. S. M.	"	16	J. S. Muise	Cape Rouge	4	39 60
130782	Karina II	"	21	Matthews & Scott	Eastern Harbour	6	56 40
126101	Lantana	Lunenburg	17	Robin, Jones & Whitman	"	4	40 60
103316	Laura	Pt. Hawkesbury	10	" "	"	4	33 60
126574	Laurent Aucoin	"	10	Laurent Aucoin	Point Cross	4	33 60
103315	Lillie	"	12	Matthews & Scott	Eastern Harbour	5	41 50
96795	Louise	"	11	S. Bellefontaine	"	4	34 60
193330	Lucy	"	11	Robin, Jones & Whitman	"	4	34 60
126576	M. C. G. Boudreau	"	22	S. Bellefontaine	"	5	51 50
130789	M. P. Delaney	"	12	M. P. Delaney	Grand Etang	6	47 40
126104	M. Unity	Lunenburg	26	Robin, Jones & Whitman	Eastern Harbour	5	55 50

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LIST of Vessels which received Fishing Bounty, 1915-16—Nova Scotia—*Con.*

INVERNESS COUNTY.—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name and Owner or Managing Owner.	Residence.	No. of Crew Paid.	Amount of Bounty Paid.
							$ cts.
138041	Mabel W	Pt. Hawkesbury	11	Matthews & Scott	Eastern Harbour	3	28 70
117056	Margaret	Canso	16	" "	"	6	51 40
96777	Marie	Pt. Hawkesbury	10	Robin, Jones & Whitman	"	4	33 60
130784	Marie H. Le Blanc	"	25	Gabriel Le Blanc	Belle Cote	4	48 60
96777	Marie Joseph	"	11	Robin, Jones & Whitman	Eastern Harbour	4	34 60
103314	Mary	"	10	W. R. Doucett	Grant Etang	6	45 40
111797	Mermaid	"	13	Thos. Harris	Plateau	4	36 60
103326	Mizpah	"	10	Thos. Le Brun	Grand Etang	5	39 50
121893	Orinoco	Liverpool	13	Jos. McKinnon	Belle Cote	4	36 60
126580	Paul V	Pt. Hawkesbusy	14	Robin, Jones & Whitman	Eastern Harbour	5	43 50
130790	Perouche	"	12	S. P. Cormier	Grand Etang	6	47 40
130786	St. Clements	"	12	Robin, Jones & Whitman	Eastern Harbour	4	35 60
111792	Saint Aubin	"	15	" "	"	4	38 60
103329	Saint Helier	"	12	" "	"	4	35 60
111800	Tallahassee	"	12	S. Bellefontaine	"	4	35 60
122238	Violet and Annie	Halifax	12	Robin, Jones & Whitman	"	5	41 50
96773	Virgin	Pt. Hawkesbury	10	" "	"	4	33 60
111793	Walla Walla	"	11	S. Bellefontaine	"	5	40 50
126571	Warbler	"	10	Robin, Jones & Whitman	"	4	33 60
130783	Zambuck	"	17	" "	"	4	40 60

KINGS COUNTY.

88276	Falcon	St. Andrews	12	John Roscoe	Halls Harbour	4	35 60

LUNENBURG COUNTY.

130466	A. H. Eisnor	Lunenburg	80	J. Ernst & Son	Mahone Bay	19	192 10
130675	A. L. Conrad	"	11	Albert Conrad	Rose Bay	3	28 70
130947	Abacena	"	80	Jos. Conrad	Dayspring	18	186 20
131173	Accrescent	"	11	Ewen Smeltzer	Lunenburg	3	28 70
130739	Ada M. Westhaver	"	80	E. F. Zwicker	"	19	192 10
130956	Alfarata	"	80	J. Ernst & Son	Mahone Bay	19	192 10
134046	Allison H. Maxner	"	80	E. F. Zwicker	Lunenburg	19	192 10
130475	Alma M	"	15	Henry Miller	Eastern Points	3	32 70
130942	Amy B. Silver	"	80	Kenneth Silver	Dayspring	24	221 60
116522	Anita	"	16	Wm. Cleversey	West la Have	3	33 70
133816	Anita P	"	12	Clarence Publicover	Blandford	3	29 70
134491	Annie Lunn	"	10	Foster Young	Lunenburg	2	21 80
126585	Annie L. Spindler	"	80	E. F. Zwicker	"	20	198 00
131165	Araminta	"	80	"	"	20	198 00
134047	Aranoka	"	80	Robt. Hiltz, sr	Indian Point	17	180 30
130818	Araucania	"	80	Mahlom Rhodenizer	Lunenburg	19	192 10
131176	Arcola	"	80	H. W. Adams	"	21	203 90
134058	Ard	"	11	Francis Mason	Eastern Points	3	28 70
130465	Artisan	"	80	Wm. Arenburg	Lunenburg	20	198 00

LIST of Vessels which received Fishing Bounty, 1915-16—Nova Scotia—*Con.*

LUNENBURG COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew Paid.	Amount of Bounty Paid.
							$ cts.
130737	Asaph F.	Lunenburg.	15	Clarence Cleveland.	Blandford	2	26 80
131163	Associate	"	80	J. E. Backman	Riverport	19	192 10
126587	Assurance	"	80	Wm. C. Smith	Lunenburg	19	192 10
121685	Augusta	Yarmouth	11	Jas. Wynot	Black Rocks	3	28 70
137814	Austin B.	Lunenburg.	10	Albert Bush	West Dublin	3	27 70
134041	Azanetta	"	35	Benj. Cleveland	Bayswater	3	52 70
126830	Benevolence	"	80	Wm. C. Smith	Lunenburg	20	198 00
131061	Bernice	"	10	Jas. Langille	Tancook	2	21 80
130679	Bessie A. P.	"	11	Man. Publicover	Blandford	3	28 70
137878	Betty B	"	10	Harris Publicover	"	3	27 70
130726	Beulah W.	"	11	Herbert Young	Tancook	2	22 80
131070	Blanche L. G.	"	11	Henry Gates	Blandford	4	34 60
131080	Blanche S.	"	10	Noah Baker	East River Point	2	21 80
130953	Cantow	"	13	Elias Publicover	Blandford	3	30 70
134054	Carl S.	"	80	A. V. Conrad	Parks Creek	20	198 00
134052	Carranza	"	80	Harris Conrad	Vogler's Cove	25	215 70
126119	Carrie L. Hirtle	"	80	Wm. C. Smith	Lunenburg	20	198 00
121999	Cavalier	"	13	Kenneth Cleveland	Blandford	4	36 60
126586	Cecil L. Beck	"	80	Wm. C. Smith	Lunenburg	19	192 10
130957	Cecil P. L.	"	11	Vernon Langille	Tancook	3	28 70
130944	Cento	"	80	J. D Fralick	Pleasantville	19	192 10
134405	Clark L. Corkum	"	80	J. N. Rafuse	Conquerall	19	192 10
122315	Clintonia	"	80	Wm. C. Smith	Lunenburg	20	198 00
130731	Daisy Z	"	11	Solomon Zinck	Blandford	4	34 60
126824	Dan Patch	"	12	Robert Levy	Lunenburg	3	29 70
131177	Delawana	"	80	Wm. C. Smith	"	19	192 10
130948	Delia H.	"	11	Jos. Hirtle	Tancook	3	28 70
131069	De Witt	"	11	Garnett Rhuland	Lunenburg	3	28 70
137879	Dirigible	"	12	Arthur Young	G. River	3	29 70
134403	Donald A. Creaser.	"	80	J. E. Backman	Riverport	19	192 10
130562	Donald L. Silver.	"	80	Wm. Arenburg	Lunenburg	19	192 10
130729	Dora P.	"	12	Hugh Cleveland	Blandford	3	29 70
130463	Doris V. Myra	"	80	Clarence Myra	Riverport	20	198 00
134406	Dorothy Adams.	"	80	H. W. Adams	Lunenburg	20	1 8 00
137872	Dorothy P. Sarty.	"	77	J. W. Sarty	Pleasantville	24	218 60
116540	Douglas Adams.	"	80	H. W. Adams	Lunenburg	18	186 20
134408	Douglas B. Conrad	"	76	Jos. Conrad	Dayspring	19	188 10
133805	E. B. Walters	"	80	E. F. Zwicker	Lunenburg	22	209 80
122009	Earl Grey	"	80	"	"	18	186 20
126391	Edith Marguerite.	"	80	Horatio Ritcey.	Riverport	18	186 20
83308	Ella	"	10	J. C. Hanson	Mahone Bay	1	15 90
121994	Ella Mason	"	74	J. W. Publicover	La Have	17	174 30
134395	Elsie Birdett.	"	80	J. Ernst & Son	Mahone Bay	20	198 00
130690	Elsie C.	"	10	Wm. Cross	Tancook	4	33 60
130827	Elsie L. Corkum	"	80	Amiel Corkum	La Have	19	192 10
134401	Elsie M. Hart	"	80	E. F. Zwicker	Lunenburg	20	198 00
130819	Elsie Porter	"	80	W. N. Reinhardt	La Have	20	198 00
131079	Elsie S.	"	10	Robt. Schnare	Blandford	3	27 70
133815	Elma M.	"	10	S. McDonald	Stonehurst	3	27 70
134059	Elva M. Y	"	11	Manson Young	Tancook	3	28 70
137873	Emily E. Selig	"	80	Adam Selig	Vogler's Cove	19	192 10
131073	Estey	"	10	Nathan Silver	Lunenburg	3	27 70
130572	Etokia.	"	80	J. Ernst & Son	Mahone Bay	17	180 30
116518	Eva June	"	80	Wm. C. Smith	Lunenburg	17	180 30
126814	Evelyn V. Miller.	"	80	H. W. Adams	"	20	198 00
130728	F. M. Toro.	"	80	E. F. Zwicker	"	20	198 00
122304	Falcon	"	80	Edmen Walters	Parks Greek	19	192 10
130734	Falka	"	80	E. F. Zwicker	Lunenburg	19	192 10
130576	Filmore H.	"	11	Albert Hubley	Pleasantville	3	28 70
122604	Florence B.	"	46	Christian Iversen	Lunenburg	9	99 1

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LUNENBURG COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
130575	Forman F.	Lunenburg	14	Obediah Eleet.	Blandford	3	31 70
107350	Forrester	"	21	Alton Westhaver	Martins Brook	5	50 50
134399	Frances W. Smith	"	80	Wm. C. Smith	Lunenburg	19	192 10
126581	Frank H. Adams	"	80	Freeman Anderson	"	20	198 00
130825	Frank J. Brinton	"	80	Wm. Gilfoy	"	17	180 30
134397	Frank L. C	"	11	Stephen Cleversey	Pleasantville	2	22 80
130464	Gigantic	"	80	A. V. Conrad	Parks Creek	16	174 40
121851	Gladys B. Smith	"	80	Wm. C. Smith	Lunenburg	20	198 00
134049	Golden West	"	80	W. N. Reinhardt	La Have	19	192 10
122103	Grace Darling	"	64	A. A. Lantz	Mahone Bay	14	146 60
133810	Granite	"	80	Wm. Richard	La Have	23	215 70
116527	Guide	"	73	W. N. Reinhardt	"	17	173 30
133807	H. H. MacIntosh	"	80	Wm. C. Smith	Lunenburg	18	186 20
131068	H. Mason	"	10	Casper Mason	Eastern Points	3	27 70
130678	Harper	"	10	Gordon Manuel	Gold River	3	27 70
130461	Harry W. Adams	"	80	H. W. Adams	Lunenburg	19	192 10
126392	Hawanee	"	80	Wm. C. Smith	"	20	198 00
126102	Hazel L. Ritcey	"	80	Reuben Ritcey	Riverport	18	186 20
122005	Henry L. Montague	"	80	Wm. C. Smith	Lunenburg	18	186 20
130684	Hollo	"	11	Ozem Hubley	Bayswater	4	34 60
131077	Hosie	"	10	Steadman Wilnoff	Tancook	4	33 60
133813	Howard Stanley	"	20	Stanley Langille	"	4	43 60
130673	Hughie V. L.	"	10	Rodgers Levy,	"	2	21 80
130950	Hurrah	"	13	Otis Stevens	"	4	36 60
126813	Itaska	"	80	Reuben Ritcey	Riverport	20	198 00
126584	J. B. Young	"	80	J. B. Young	Lunenburg	15	168 50
130943	J. D. Hazen	"	80	Wm. C. Smith	"	20	198 00
134053	J. W. Margeson	"	79	Jos. Conrad	Dayspring	19	191 10
133819	James Burton Cook	"	80	Wm. C. Smith	Lunenburg	21	203 90
134407	James Douglas	"	80	"	"	20	198 00
126822	James E. Ritcey	"	80	"	"	21	203 90
130467	Jennie E. Duff	"	80	William Duff	"	20	198 00
130735	Jennie P. S.	"	34	Henry Publicover	Blandford	5	63 50
133804	John Parker	"	80	W. N. Reinhardt	La Have	19	192 10
126819	Laura M. Levy	"	11	Maynard Levy	Lunenburg	3	28 70
134043	Lauretta Francis	"	80	E. F. Zwicker	"	20	198 00
130473	Lavina B.	"	11	Maynard Boutilier	Mill Cove	3	28 70
131170	Leone G.	"	11	Alex. Greek	Blue Rocks	2	22 80
130959	Leta J. Schwartz	"	80	J. H. Schwartz	Lunenburg	17	180 30
130462	Lewis H. Smith	"	80	Wm. C. Smith	"	19	192 10
130815	Lillian B. Corkum	"	80	Wm. Corkum	"	19	192 10
133817	Lillian G.	"	11	David Graves	Chester	2	22 80
126821	Lloyd George	"	80	E. F. Zwicker	Lunenburg	21	203 90
133820	Lobelia L.	"	25	Charles Levy	Tancook	4	48 60
131065	Lois M. C.	"	12	Alvin Cross	"	3	29 70
130820	Lottie A. Silver	"	80	Russell Silver	Lunenburg	21	203 90
130688	Lottie M. Blanche	"	12	David Moland	East Chester	2	23 80
130730	Lowell F. Parks	"	80	R. D. Parks	Parks Creek	18	186 20
134055	Loyola	"	80	Dawson Fralick	Pleasantville	19	192 10
130814	Lucille B. Creaser	"	80	Arthur Creaser	Riverport	19	192 10
131074	Lunenburg	"	10	George Baker	Cross Island	2	21 80
130732	M. M. Gardner	"	80	Wm. C. Smith	Lunenburg	20	198 00
130477	Madge A. P	"	10	Chauncey Publicover	Blandford	2	21 80
131180	Malada	"	21	Harris Fleet	"	4	44 60
116523	Mankato	"	76	Edmen Walters	Parks Creek	17	176 30
121862	Marina	"	78	W. N. Reinhardt	La Have	18	184 20
130816	Marion Adams	"	80	H. W. Adams	Lunenburg	21	203 90
130829	Marion A. Silver	"	80	Christian Iversen	"	20	198 00

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LUNENBURG COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of crew paid.	Amount of Bounty paid.
							$ cts.
134107	Marion Helena	Lunenburg	80	J. Ernst & Son	Mahone Bay	19	192 10
126829	Marion Mosher	"	80	Mahlon Rhodenizer	Lunenburg	20	198 00
134396	Marjorie E. Backman	"	80	J. E. Backman	Riverport	23	215 70
134402	Marjorie McGlashan	"	80	William Duff	Lunenburg	21	203 90
126829	Mark Twain	"	11	William Wight	Eastern Points	3	28 70
130941	Mary & Mildred	"	80	Christian Iversen	Lunenburg	20	198 60
133803	Mary F. Fleming	"	80	"	"	18	186 20
130822	Matanzas	"	80	Wm. C. Smith	"	19	192 10
130736	Matapedia	"	80	J. E. Backman	Riverport	18	186 20
130676	Matilda H	"	11	Collins Heisler	Tancook	2	22 80
121854	Mattawa	"	80	E. F. Zwicker	Lunenburg	19	192 10
133818	Mildred Baker	"	10	Howard Baker	"	4	33 60
126107	Minnie M. Mosher	"	73	J. E. Backman	Riverport	19	185 10
134051	Monarchy	"	80	Josiah Lohnes	La Have	19	192 10
126113	Muriel B. Walters	"	80	Wm. Arenburg	Lunenburg	19	192 10
130733	Muriel E. Winters	"	80	Freeman Anderson	"	19	192 10
130573	Muriel L	"	15	Peter Lowe	Mahone Bay	3	32 70
126663	Nellie J. Banks	Shelburne	35	Phineas Richard	Pentz	8	82 20
94833	News Boy	Port Medway	16	James Bell	Dublin Shore	3	33 70
126827	Nobility	Lunenburg	80	J. E. Backman	Riverport	16	174 40
134044	Norma P. Coolen	"	80	W. D. McLean	Mahone Bay	19	192 10
130955	No Tow	"	15	Harry Publicover	Blandford	3	32 70
137876	Olive E	"	11	Alvin Naugler	Dayspring	2	22 80
130826	Original	"	80	Wm. C. Smith	Lunenburg	18	186 20
131067	P. C. Mason	"	10	Phineas Mason	Eastern Points	2	21 80
133801	Pasadena	"	80	J. Ernst & Son	Mahone Bay	18	186 20
130563	Phoebe M	"	11	David Morash	West Dover	3	28 70
130828	Phyllis L. Westhaver	"	80	Mahlon Rhodenizer	Lunenburg	20	198 00
130817	R. L. Borden	"	80	G. A. Himmelman	"	21	203 90
130951	Rakwana	"	11	Albert Meisner	"	3	28 70
130569	Rebecca M. L	"	11	Nathaniel Levy	Tancook	3	28 70
130674	Reggie P. P	"	11	Ephraim Rafuse	Martins Point	4	34 60
126114	Revenue	"	80	Wm. C. Smith	Lunenburg	19	192 10
130478	Review	"	74	J. E. Backman	Riverport	19	186 10
130946	Ronald C	"	11	Clarence Tanner	Stonehurst	5	43 50
130689	Rosanna T	"	10	Israel Tanner	Eastern Points	3	27 70
126034	Russel H. Pentz	"	80	A. V. Conrad	Parks Creek	18	186 20
130685	S. F. Levy	"	11	Clifford Levy	Tancook	3	28 70
130580	Sadie Evelyn	"	11	Marcus Publicover	Blandford	2	22 80
130724	Sealer	"	11	Amos Levy	Cross Island	3	28 70
133808	Selma M	"	11	Albert Mason	Tancook	2	22 80
126582	Sesame	"	15	Joshua Ernst	Pleasantville	2	26 80
130474	Shant Alee	"	11	Robert Wight	Eastern Points	2	22 80
130471	Skip	"	11	Arthur Mason	"	4	34 60
1340 0	Tancook	"	37	Ernest Covey	Tancook	7	78 30
131161	Thelma C	"	13	Irvin Boutilier	N.W. Cove	3	30 70
131062	Three Cousins	"	13	Wesley Greek	Lunenburg	3	30 70
131409	Tipperary	"	80	W. N. Reinhardt	La Have	18	186 20
126590	Uda A. Saunders	"	80	E. F. Zwicker	Lunenburg	19	192 10
122306	Undaunted	"	13	Clifford Whynot	Vogler's Cove	3	30 70
1311,9	Vera E. Himmelman	"	80	Wm. Duff	Lunenburg	20	198 00
130681	Verna L	"	12	Emanuel Corkum	Middle La Have	3	29 70
131063	Vernie S	"	10	Abraham Knickle	Blue Rocks	3	27 70
134012	Viola May	"	80	J. Ernst & Son	Mahone Bay	20	198 00
157880	Violet B. Wynacht	"	10	Nathaniel Wynacht	Stonehurst	3	27 70
1311,4	W. C. McKay	"	80	Daniel Lohnes	Riverport	19	192 10
131172	W. G. Robertson	"	80	J. W. Publicover	La Have		198 00

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Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of crew paid.	Amount of Bounty paid.
							$ cts.
130824	W. H. Smith	Lunenburg	80	Wm. C. Smith	Lunenburg	17	180 30
131175	W. T. White	"	80	"	"	20	198 00
130682	Warren G. C	"	10	Jos. Levy	Feltzen South	2	21 80
126120	Warren G. Winters	"	80	Freeman Anderson	Lunenburg	20	198 00
133809	Warren M. Colp	"	80	Wm. Duff	"	22	209 80
126115	Watauga	"	80	H. W. Adams	"	18	186 20
126818	William C. Smith	"	80	Wm. C. Smith	"	20	198 00

QUEEN'S COUNTY.

122579	Amerite	Yarmouth	12	Ralph Leslie	Eagle Head	3	29 70
130677	Cunner	Lunenburg	10	Thomas Smith	S.W. Port Mouton	3	27 70
122235	Ena A.	Barrington	12	W. S. Leaman	Port Medway	2	23 80
107054	Favorite	Liverpool	28	J. E. Corkum	Beach Meadows	5	57 50
121877	Florence C.	"	15	Wm. Croft	Western Head	2	26 80
116352	G. B Zwicker	Port Medway	12	Roy Hiltz	Port Medway	3	29 70
130247	Gaetta	"	15	S. E. Parke	"	3	32 70
122239	Hilda Brannen	Liverpool	10	Merrill Pentz	Beach Meadows	2	21 80
121887	Lena	Yarmouth	11	Walter Fraser	Port Mouton	4	34 60
122105	Lottie G	"	10	Max Clattenburg	Port Medway	4	33 60
131205	Oliver Twist	Liverpool	10	Alex. Huskins	Port Mouton	3	27 70
121682	Quickstep	Yarmouth	10	W. A. Doggett	White Point	1	15 90
131207	Rhoda C	Liverpool	10	Wm. J. Wagner	Summerville	4	33 60
122236	Thelma B	Barrington	12	Swim Bros	Lockeport	2	23 80
130725	W. Baker	Lunenburg	10	Wm. Baker	Liverpool	3	27 70

RICHMOND COUNTY.

130740	Albert A. Young	Lunenburg	80	L. N. Poirier	Descousse	22	209 80
116657	Alice M	Yarmouth	26	T. R. Boudrot	Petit De Grat	5	55 50
111472	Annie May	Arichat	17	Peter Landry	"	4	40 60
74100	Candid	"	23	J. H. Poirier	Descousse	4	46 60
130355	E. L. Comeau	"	19	A. A. Boudrot	Petit De Grat	5	48 50
121866	Eldora	Lunenburg	79	F. J. Poirier	Descousse	17	179 30
80829	Florence B	Arichat	32	Chas. Boudreau	River Bourgeois	10	91 00
117049	H. C. Phillips	Barrington	11	Alfred LeBlanc	Martinique	3	28 70
117091	Hazel Maud	Arichat	10	Alcide Goyetche	Cape August	4	33 60
126346	Hobo	Barrington	12	Jas. Marchand	Petit de Grat	3	29 70
100538	J. E. Collins	Halifax	36	S. F. Burke	River Bourgeois	11	100 90
111795	Katie J	Pt. Hawkesbury	11	Ronald McDonald	Janvrin Island	3	28 70
111480	Lady Laurier	Arichat	12	Paul LeBlanc	Poulamon	2	23 80
117092	Lass of Gowrie	"	16	Jos. Petitpas	Arichat	3	33 70
130360	Lawrence B	"	10	L. B. Sampson	Louisdale	4	33 60
107374	Leah Hardy	Sydney	20	John Burke	River Bourgeois	5	49 50
137991	Lena S	Arichat	11	Alaire Sampson	Petit de Grat	3	28 70
137992	Luca	"	10	Benj. Marchand, jr	Louisdale	4	33 60
107995	Maggie M. F.	Canso	15	Isaïe Boudreau	River Bourgeois	2	26 80
111798	Marie C	Pt. Hawkesbury	18	A. F. Boudreau	Petit de Grat	6	53 40
116345	Mary Alice	Arichat	10	P. E. Sampson	Lower L'Ardoise	3	27 70
111479	Mary Atalanta	"	15	Isaiah Burke	River Bourgeois	3	32 70
122182	Mary Elizabeth	"	11	Placide Burke	"	2	22 80
117099	Mary J	"	32	Simon Goyetche	"		43 80
103462	Maud	"	20	Henry Duon	Arichat	2	31 80
72067	Minnie	Pt. Hawkesbury	26	John Pelham	Janvrin Island	3	43 70
121869	Petite	Lunenburg	61	A. P. Poirier	Poirierville	17	161 30

List of vessels which received Fishing Bounty, 1915-16—Nova Scotia—*Con.*

RICHMOND COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
117095	Rodrid Grace	Arichat	17	Hubert Birette	Lower L'Ardoise	3	34 70
116272	Rosie M. B	Halifax	75	Anselme Sampson	River Bourgeois	15	163 50
130561	Right Away	Lunenburg	19	Wm. Martell	Petit de Grat	6	54 40
130357	S. D. Boudrot	Arichat	11	Simon Fougère	Poulamon	3	28 70
107318	St. Stephen	Halifax	19	I. F. Burke	River Bourgeois	3	36 70
116889	Saint Dominique	Arichat	21	Henry Fougère	Poulamon	6	56 40
96962	Sunrise	Yarmouth	18	Chas. Fougère	River Bourgeois	5	47 50
122190	Virginie S	Arichat	16	E. V. Landry	Petit de Grat	7	57 30
116292	Wilena Fraser	Charlottetown	13	Isaac Dugas	West Arichat	3	30 70
100812	Wyvern	Barrington	25	J. D. Walker	Walkerville	2	36 80

SHELBURNE COUNTY.

121802	Abbie May	Barrington	10	Jas. Rollison	Birchtown	2	21 80
116235	Alcyone	Digby	52	The Lockeport Cold Storage Co., Ltd.	Lockeport	9	105 10
122093	Anita	Yarmouth	11	Willard Matthews	East Ragged Isld	3	28 70
100612	Ardella	Shelburne	10	Eleazar Crowe	Sandy Point	5	39 50
122453	Bertha A	Yarmouth	12	David Fleming	Cape Negro	3	29 70
130508	Blanchard C	Shelburne	11	Austin Swansburg	Little Harbour	3	28 70
103186	Brittania	"	11	Ross Enslow	West Green H'br	4	34 60
121683	D. E. Nickerson	Yarmouth	10	J. W. Hemeon	Sandy Point	4	33 60
121882	Dorothy	"	10	Howard Holmes	"	3	27 70
121791	Eddie C	"	10	J. R. Homer	Barrington	4	33 60
130504	Ella M. Rudolph	Shelburne	54	Wm. McMillan	Lockeport	12	124 80
116353	Elnora T. Bonney	Port Medway	19	" "	"	6	54 40
122470	Elva Belle	Yarmouth	11	Burns McKenzie	"	3	28 70
122467	Enterprise	"	10	Oscar Gardner	Port La Tour	3	27 70
121901	Eva M.	Barrington	11	Edwd. Goodick	Sandy Point	3	28 70
117048	Evangeline	" Passage	11	Foster Crowell	Clarks Harbour	2	22 80
122146	Flirt	Yarmouth	16	E. V. Smith	Port La Tour	4	39 60
122142	Gertrude	"	10	Mitchell Smith	Doctor's Cove	3	27 70
112138	Gladiator	Shelburne	11	Hugh McAlpine	Lockeport	3	28 70
122463	Gladys M	Yarmouth	10	Samuel Swaine	Port Saxon	3	27 70
130507	Gladys Thorburn	Shelburne	39	J. H. Thorburn	Sandy Point	12	109 80
121797	Hattie & Ina	"	10	Arnold Doane	Red Head	3	27 70
131094	Helen G. McLean	"	33	F. C. McLean	Port Saxon	7	74 30
122141	Hillside	Yarmouth	10	Harry McIntosh	West Green H'br	3	27 70
126347	Ida M. Cunningham	Barrington	16	W. L. Hemeon	East Ragged Islds	4	39 60
117131	Ilona & Ida	Yarmouth	13	H. H. Brannen	Stony Island	5	42 50
134174	Jellicoe	Shelburne	22	Wm. McMillan	Lockeport	10	81 00
116822	Jennet	Barrington	11	Kenny & Gardiner	McNutt's Island	3	28 70
122138	Jennie L	Yarmouth	10	Ross Enslow	West Green H'br	2	21 80
121795	John L	"	11	Bert Hipson	Sandy Point	2	22 80
121692	Josephine	"	10	Hervey Snow	Villagedale	4	33 60
126670	Julie Opp	Shelburne	38	Herbert R. Swim	Lockeport	12	108 80
122131	Katie M	Yarmouth	10	Geo. Acker	Birchtown	1	15 90
122290	Kernwood	"	80	The Lockeport Cold Storage Co., Ltd.	Lockeport	18	186 20
122458	Lila A	Barrington Pas'e	10	H. H. Atkinson	Stony Island	5	39 50
130627	Lily M. Hodge	Yarmouth	31	The Lockeport Cold Storage Co., Ltd.	Lockeport	2	42 80
121693	Little Charley	"	10	Howard Newell	West Head	3	27 70
131201	Lydia May	Liverpool	39	W. A. Inness	Lockeport	5	68 50
116854	Marianna	Shelburne	33	F. W. Sutherland	"	7	74 30
126350	Monarch I	Barrington Pas'e	17	Churchill Penney	Clark's Harbour	7	58 30
121905	Mira L. Smith	"	14	E. P. Crowell	Port La Tour	4	37 60
121687	Monitor	Yarmouth	10	Ernest Holmes	Sandy Point	2	21 80

List of Vessels which received Fishing Bounty, 1915-16—Nova Scotia—*Con.*

SHELBURNE COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
131091	Nellie Viola	Shelburne	40	J. T. McKenzie	Lockeport	14	122 60
117132	Nema D	Yarmouth	10	G. S. Firth	Shelburne	3	27 70
131096	Ohio	Shelburne	42	Roseway Fish Co., Ltd	"	14	124 60
117050	Olive R	Barrington	14	H. R. Swim	Lockeport	3	31 70
131099	Opitza	Shelburne	41	"	"	15	129 50
130506	R. L. McKenzie	"	33	R. L. McKenzie	"	10	92 00
122466	Rilla May	Yarmouth	12	Levi Nickerson	West Head	4	35 60
131095	Ronald B	Shelburne	40	Charles Wyman	Shelburne	14	122 60
126350	Monarch I	Barrington Pas'e	17	Churchill Penney	Clark's Harbour	7	58 30
103783	Springwood	Shelburne	80	Wm. McMillan	Lockeport	20	198 00
117046	Three Brothers	Barrington	13	Percy Nickerson	Port Saxon	5	42 50
116448	Togo	Shelburne	18	E. C. Locke	Lockeport	5	47 50
121792	Twin Sisters	Yarmouth	10	Wm. Connell	Clark's Harbour	3	27 70
117143	Valmore	Halifax	11	Clayton Collupy	Lockeport	2	22 80
121873	Viola S	Yarmouth	16	C. E. Van Amburg	"	2	27 80
122464	Willie M	"	14	Walter Watts	Sandy Point	3	31 70
121656	Zilpha	"	10	R. R. Lloyd	Sable River	3	27 70

VICTORIA COUNTY.

107028	Anna F	Sydney	14	James Brewer	South Ingonish	5	43 50
126023	Beatrice Donovan	"	18	Robin, Jones & Whitman	Halifax	5	47 50
130369	Edna R. Hines	"	18	Angus J. Hines	Ingonish Ferry	5	47 50
131213	Elizabeth Donovan	"	11	Thomas W. Donovan	South Ingonish	5	40 50
126562	Hawley Brothers	"	11	James Hawley	Ingonish Ferry	5	40 50
122120	Julia F. C	"	12	Thomas A. Young	South Ingonish	5	41 50
130362	M. A. McDonald	"	17	Angus McDonald	" "	5	46 50
107355	Mary E	"	10	Allen McIntyre	Ingonish Ferry	5	39 50
131214	Phœbe Jordon	"	15	Charles Williams	South Ingonish	3	32 70
122128	Reliance	Halifax	18	Robin, Jones & Whitman	" "	6	53 40
100444	Stella May	Canso	12	Simon P. Hawley	Ingonish Ferry	4	35 60
126567	T. W. J. Whittier	Sydney	15	Charles Manger	South Ingonish	5	44 50
130363	V. F. Williams	"	13	Vincent Williams	" "	2	24 80

YARMOUTH COUNTY.

111879	Annie B	Yarmouth	20	Théodore D'Entremont	West Pubnico	6	55 40
116898	Agnes M	"	11	George Doucette	Tuskett	2	22 80
126808	Agnes Pauline	"	71	Raymond N. D'Entremont	West Pubnico	17	171 30
121695	Aroma S	"	10	L. A. D'Entremont	" "	2	21 80
116828	Beatrice	Barrington	12	Winfield Goodwin	Argyle Sound	5	41 50
122238	Buema	Shelburne	36	Daniel Ryder	Lower Argyle	6	71 40
121694	Columbia	Yarmouth	10	Fred H. Murphy	Pubnico Head	4	33 60
137871	Cupola	Lunenburg	73	Adolphus D'Entremont	Lower West Pubnico	15	161 50
100605	Dawn	Yarmouth	51	Henry A. Amiro	Yarmouth	10	110 00
126807	Elizabeth D	"	79	Sylvain D. D'Entremont	Lower West Pubnico	21	192 90

List of Vessels which received Fishing Bounty, 1915-16—Nova Scotia—*Concluded.*

YARMOUTH COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
103066	Eddie J.	Yarmouth	23	Henry A. Amiro	Yarmouth	10	82 60
116205	Eddie James.	"	79	Henry A. Amiro	"	18	185 20
121872	Francis A.	"	80	Henry A. Amiro		10	139 00
121907	Freda N. Nickerson	Barrington	12	Henry Nickerson	Argyle Sound	1	17 90
122099	Hilda	Yarmouth	17	James A. Boudrean	Wedgeport	4	40 60
130626	Joseph Lester	"	15	J. R. Amiro	West Pubnico	4	38 60
134161	James R. Clark	"	47	Hilaire P. LeBlanc	Wedgeport	17	147 30
116204	Laurie J.	"	65	Julien D'Entremont	West Pubnico	19	177 10
116899	Lydia L.	"	14	Adolfe LeBlanc	Wedgeport	2	25 80
130625	Louis P	"	60	Louis P. D'Entremont	West Pubnico	15	148 50
116658	Mable A.	"	15	Arthur Cosman	Yarmouth	3	32 70
112112	Maimie Dell	Lunenburg	80	Yarmouth Trading Co.	"	18	186 20
111875	Nelson A.	Yarmouth	72	Henry A. Amiro	"	18	178 20
126187	Nathalie	"	28	Yarmouth Trading Co.	"	10	87 00
103800	Nellie I. King	Shelburne	80	George H. King	Shelburne	12	150 80
103706	Regine	Yarmouth	10	T. A. D'Entremont	West Pubnico	6	45 40
130509	Roseway	Shelburne	37	James Bowers	Shelburne	16	131 40
117138	Two Brothers	Yarmouth	11	Lorey Ross	Yarmouth Bar	4	34 60
134163	Viola A.	"	20	John A. Pothier	Eel Brook	5	49 50
103711	Venite	"	24	James E. Crosby	Yarmouth	4	47 60
122452	Virginia	Barrington	17	William A. Surette	"	4	40 60
121894	Vice Reine	Shelburne	12	Hugh McManus	"	5	41 50
121812	Wilfred L. Snow	Digby	51	Andrew A. D'Eon	West Pubnico	13	127 70
126348	Wm. N. Ryder	Barrington	70	Don C. Smith	Woods Harbour	18	176 20
122465	White Wing	Yarmouth	11	Joseph Harris	Yarmouth		16 90

PROVINCE OF NEW BRUNSWICK.

CHARLOTTE COUNTY.

92517	Ada	St. Andrews	10	William Matthews	L'Etete	3	27 70
107903	Ava M.	"	17	George A. Johnson	Woodwards Cove	7	58 30
122573	Bohemia	"	10	T. M. Dakin	North Head	7	51 30
122250	Bonita	"	15	Isaiah Carter	Seeleys Cove	3	32 70
111898	Catherine	Weymouth	11	Robert A. Main	Woodwards Cove	4	10 60
103141	Edward Morse	St. Andrews	32	Alexander Calder	Campo Bello	3	49 70
111522	Elizabeth.	Digby	21	Fred W. Avery	" "	2	32 80
111527	Etta H.	"	10	George Justason	Blacks Harbour	3	27 70
107906	Flora	St. Andrews	14	Gratis Cook	Back Bay	2	25 80
130428	Fannie May	"	25	William McLellan	Campo Bello	3	49 70
122248	Hattee B.	"	10	Wilmot Benson	Seal Cove	3	27 70
111839	Harry C.	Digby	16	John Matthews	L'Etete	4	39 60
103121	Island Girl	St. Andrews	17	Birdell Lambert	Woodwards Cove	4	40 60
103907	Jessie James	"	11	Josephine Frankland	White Head	2	22 80
122591	Jennie T.	"	31	James Nesbitt	North Head	5	60 50
83164	Little Annie	Digby	18	Frederick B. Richardson	Richardson	4	43 60
122571	Lita C.	Yarmouth	13	Cecil B. Cross	Beaver Harbour	1	18 90
112311	Oronhyatekha	St. Andrews	21	James McLeese	Back Bay	1	26 90
59387	Telephone	"	19	Alfred Stanley	North Head	8	66 20
100548	Violetta	Digby	11	William M. Tucker	L'Etete	4	34 60
97149	Winnie	St. Andrews	12	Herbert Holland	Seeley's Cove	3	29 70

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List of Vessels which received Fishing Bounty, 1915-16—New Brunswick—*Con.*

GLOUCESTER COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid	Amount of Bounty paid.
							$ cts.
130658	Abutilon	Chatham	19	Joseph Lacroix	Caraquet	4	42 60
72099	Adelina	"	12	Philias Gionet	"	4	35 60
103081	Albatross	"	13	Wm. Fruing & Co	"	3	30 70
130985	Alexisna	"	17	Romain A. Noel	Little Lameque	4	52 40
122057	Alice	"	15	Severe Duguay	"	5	44 50
130332	Alika P	"	15	Pierre G. Hebert	"	3	32 70
112162	Alma	"	12	Agapit Duguay	Lameque	4	35 60
92419	Anna	"	12	Jeremie S. Aché	"	4	35 60
100960	Annie M	"	11	W. S. Loggie, Co., Ltd.	Caraquet	4	35 60
137912	Anonciade	"	20	Théotime Gallien	"	4	43 60
96739	Argeline	"	14	Jean Bte. Chiasson	"	5	43 50
134332	Arseneau Brothers	"	10	Joseph Arseneau	Inkerman	3	27 70
130988	Aviator	"	17	Pierre S. Lanteigne.	Caraquet	4	40 60
100975	Big Bear	"	10	Louis Chiasson	"	4	33 60
103072	Ben Hur	"	11	Adolphe LeClerc	"	5	40 50
100299	Blanchard	"	12	Robin, Jones & Whitman	"	4	36 60
103589	Blenheim	"	13	Robin, Jones & Whitman	"	4	36 60
130657	Bolina	"	20	Robin, Jones & Whitman	"	4	43 60
137919	Bouvet	"	10	Romain M. Godin	Mizonette	3	27 70
103780	Britannia	"	13	Wm. Fruing & Co	Caraquet	4	36 60
100780	Britannic	"	12	W. S. Loggie Co., Ltd.	Lower Caraquet	5	41 50
100988	Caesar	"	10	Gustave P. Chiasson	Caraquet	5	39 50
100774	Calliope	"	12	Raphael Hebert	"	4	35 60
134324	Canna	"	14	Robin, Jones & Whitman	"	4	37 60
134005	Catch Me	"	17	P. E. LeBouthillier	"	4	40 60
130339	Caraquet	"	19	Philias Doiron	"	5	48 50
130996	Castalenno	"	28	Robin, Jones & Whitman	"	4	51 60
103585	Cedric	"	14	Henri X. Chenard	"	4	37 60
103271	Celia	"	11	Adelard Haché	Miscou Centre	3	28 70
100784	Charlotte	"	13	F. T. B. Young	Caraquet	4	36 60
133911	Contribution	"	11	Guillaume Chenard	"	3	28 70
103083	Corsair	"	10	Wm. Fruing & Co., Ltd	Lameque	5	39 50
111465	C.R.C	"	13	Robin, Jones & Whitman	Caraquet	4	36 60
133920	Cute	"	12	Noé Chiasson	Miscou Centre	3	29 70
100913	Daffodil	"	10	Jean G. Robichaud	Shippigan	4	33 60
130998	De Grace	"	10	James De Grace	"	4	33 60
103076	Dipper	"	12	W. S. Loggie Co., Ltd		4	35 60
130982	Dit-on	"	12	Henri Legere	Caraquet	4	35 60
103948	Dora	"	12	Robin, Jones & Whitman	"	3	29 70
112155	Dora	"	10	Seraphin Doiron	Miscou Harbour	4	33 60
122053	Dorie	"	10	Peter P. Chiasson	Island River	4	33 60
100999	Dove	"	11	C. L. Robichaud	Caraquet	4	34 60
137917	Duc de la Marine	"	22	Onesime Paulin	"	5	51 50
100998	Eagle	"	10	Alfred Gauvin	"	4	33 60
116979	Elie Anne	"	17	Joseph J. Doiron	"	4	40 60
103590	Eliza	"	13	Robin, Jones & Whitman	"	4	36 60
100293	Eliza	"	15	F. T. B. Young	"	5	41 50
133925	En Avant	"	11	André Aché	Lameque	3	28 70
130986	Emerencienne	"	17	Théophile Noel	"	4	40 60
137913	Emilie Blanchard	"	22	Patrick Blanchard	Caraquet	5	51 50
134009	Emily J	"	18	John Luce	Little Shippigan	4	41 60
92585	Emma	"	19	William O'Keefe	Caraquet	5	48 50
100911	Emperor	"	10	Wm. Fruing & Co	"	4	33 60

List of Vessels which received Fishing Bounty, 1915-16—New Brunswick—*Con.*

GLOUCESTER COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
100786	Empress	Chatham	12	F. T. B. Young	Caraquet	4	35 60
100772	Estelle	"	13	Victor Lanteigne	"	4	36 60
100787	Ethel	"	11	F. T. B. Young	"	5	39 50
133916	Etoile d'un Marin	"	20	Octave Noel	Lameque	5	49 50
122058	Evangeline	"	10	Vilas Frigault	Mizonette	4	33 60
103001	Falcon	"	10	Abbe Lantiegne	Caraquet	4	33 60
103077	Fame	"	10	George D. Mallet	Shippigan	4	33 60
133926	Fidelis	"	11	Amedée L. Duguay	Little Lameque	4	34 60
122621	Fillera	"	18	Prudent G. Albert	Caraquet	4	41 60
130654	Fish Seeker	"	20	Gustave J. Gallien	"	4	43 60
100298	Fisher	"	12	Louis Guignard	Lameque	3	29 70
111468	Fleetwing	"	14	Wm. Fruing & Co., Ltd.	Caraquet	5	43 50
112165	Flying Cloud	"	13	Wilfrid Robichaud	Shippigan	4	36 60
112151	Flying Foam	"	18	Robin, Jones & Whitman	Caraquet	4	41 60
116479	Fortuna	"	10	Xavier Poirier	Mizonette	3	27 70
111467	Four Brothers	"	13	Henri Albert	Caraquet	4	36 60
134607	Fred L	"	18	Fred Lanteigne	Little Shippigan	5	47 50
100778	Gambetta	"	13	W. S. Loggie Co., Ltd.	Chatham	4	34 60
100954	Gazelle	"	10	" " "	"	4	33 60
111464	Gazelle	"	13	Robin, Jones & Whitman	Caraquet	4	36 60
103766	Genesta	"	12	Joseph G. Chiasson	Island River	4	35 60
116980	Georgina	"	15	W. S. Loggie Co., Ltd.	Chatham	4	38 60
100968	Gem	"	11	Antoine N. Godin	Mizonette	4	34 60
96733	Gem	"	12	Wm. Fruing & Co., Ltd.	Caraquet	4	35 60
130356	Gilbert B	Arichat	13	Frank Resle, Sr.	Miscou Harbour	5	42 50
103282	Gilknockie	Chatham	11	John N. LeBouthillier		4	34 60
130336	Ginger	"	19	Luc L. Friolet	Caraquet	4	42 60
111848	Gipsy	"	15	Wm. Fruing & Co., Ltd.	Caraquet	4	38 60
103086	Gipsy	"	20	W. S. Loggie Co., Ltd.	Chatham	4	43 00
107775	Gold Seeker	"	13	Robin, Jones & Whitman	Caraquet	4	36 60
112157	Grasshopper	"	16	Pierre A. Poulin	"	4	39 60
92418	Grip	"	12	Gustave Chenard	"	5	41 50
111849	Happy Home	"	16	Majorique Chenard	"	4	39 60
100956	Harold N	"	12	Philias Mallet	Shippigan	5	41 50
122289	Helen and Hilda	"	12	George Matthews	"	3	29 70
107771	Heron	"	13	Wm. Fruing & Co., Ltd.	Caraquet	4	36 60
103765	Hirondelle	"	11	Agapit LeClerc	"	4	34 60
137928	H. L. Friolet	"	10	Henry L. Friolet	"	3	27 70
103939	Hope	"	11	John Michon	"	5	40 50
92409	Hope	"	18	David Godin	Mizonette	5	47 50
100906	Hotspur	"	10	Frank Wilson	Wilson's Point	4	33 60
130992	Hoy	"	11	Majorique Noel	Lameque	2	22 80
134336	Hughanna	"	11	J. H. B. Sewell	Caraquet	3	28 70
117181	Ida	"	16	Joseph J. Savoy	Lameque	4	39 60
103931	Irene	"	12	Wm. Fruing & Co., Ltd.	Caraquet	4	35 60
96724	Isabel	"	11	Jean Bte. Hébert	"	4	34 60
103289	Jersey Lily	"	12	Wm. Fruing & Co., Ltd.	"	5	41 50
131000	J. L. B.	"	13	Frank Baudin	Miscou Harbour	4	36 60
100958	John B.	"	11	W. S. Loggie Co., Ltd.	Chatham	4	34 60
130991	Joseph Marie G.	"	22	Charles Cauvin	Little Lameque	5	51 50
100965	Josephine	"	11	Joseph X. Chenard	Caraquet	3	28 70

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List of vessels which received Fishing Bounty, 1915-16—New Brunswick—*Con.*

GLOUCESTER COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
112169	Kathleen	Chatham	15	Wm. Fruing & Co., Ltd.	Caraquet	5	44 50
111466	King Edward	"	14	Robin, Jones & Whitman	"	4	37 60
103949	King Fisher	"	13	Wm. Fruing & Co., Ltd.	"	4	36 60
103288	Kite	"	10	Gervais Plourde	"	4	33 60
107774	Klondyke	"	14	Robin, Jones & Whitman	"	4	37 60
103283	Koh-i-noor	"	13	Joseph Aimé Doiron	"	4	36 60
130987	L'Assomption	"	18	Jacob J. Z. Chiasson	"	5	47 50
130337	L'Acadienne	"	18	John S. Noel	Lameque	4	41 60
130984	L'Acadie	"	17	Lange Aché	"	4	40 60
111461	Ladysmith	"	17	Hyppolite Chiasson	Little Lameque	5	46 50
130983	Lamecca	"	19	Camille Aché	Lameque	5	48 50
103003	Lark	"	10	Wm. Fruing & Co., Ltd.	Caraquet	4	33 60
137918	Lea Legere	"	19	Nazaire Legere	"	5	48 50
133927	Lefebvre	"	11	Sebastien Savoy	Lameque	3	28 70
137924	Léontine	"	21	A. D. Chiasson	"	6	56 40
107773	L'Etoile	"	15	Prudent Gallien	Caraquet	5	44 50
122059	Letty Jane	"	15	Wm. Fruing & Co., Ltd.	"	4	38 60
112152	Lillian	"	15	Robin, Jones & Whit man	"	5	44 50
134001	Lily Florence	"	20	" "	"	4	36 60
130981	Lobelia	"	21	" "	"	4	44 60
12 601	Loze	"	13	Gustave Jean	Caraquet	5	42 50
112154	Mac	"	11	Leo Ward	Miscou Centre	3	28 70
116977	Mabel	"	16	W. S. Loggie Co., Ltd.	Chatham	4	39 60
116480	Maggie	"	10	Isaie Lanteigne	Caraquet	4	33 60
134326	Magloire	"	10	Jean Leger	Mizonette	3	27 70
100955	Majestic	"	10	W. S. Loggie Co., Ltd.	Chatham	6	45 40
134333	Malbaie	"	11	Pierre D. Lanteigne	Miscou Centre	5	40 50
134325	Mallet	"	10	Joseph Mallet	Shippegan	3	27 70
72100	Marie	"	11	Eustache Chiason	Caraquet	4	34 60
111847	Mary	"	14	David Albert	"	4	37 60
116978	Margaret	"	16	W. S. Loggie Co., Ltd		4	39 60
107779	Marie	"	15	Gaspard Savoie	Robichaud L'nding	4	38 60
103768	Mayflower	"	18	Robin, Jones & Whitman	Caraquet	4	36 60
112163	Margaret Ann	"	13	John Jones	Little Lameque	4	36 60
103278	Marie Celia	"	13	J. N. LeBouthillier	Caraquet	4	36 60
133919	Marie Delphine	"	16	Joseph H. Savoie	Lameque	5	45 50
103984	Mary Emma	"	11	Wm. Fruing & Co.	Caraquet	3	28 70
117182	Marie Etoile	"	20	J. O. LeBouthillier	"	4	43 60
130655	Marie E. Rive	"	21	Thé dore Lanteigne	"	4	44 60
107776	Mayflower	"	11	A. D. Chiason	"	5	40 50
37915	M. J. Albert	"	20	John S. Albert	"	4	43 60
92413	Mary Jane	"	14	John P. Doiron	"	4	37 60
130995	Mary J. Margaret	"	25	Robin, Jones & Whitman	"	4	48 60
100292	Marie Joseph	"	12	Pierre Noel	Litlle Lameque	5	41 50
133994	Marie Justine	"	24	Joseph Ade. Doiron	Caraquet	5	53 50
134000	Marie Le Bouthillier	"	19	E. O. Lebouthillier	"	4	42 60
112158	Maple Leaf	"	13	Wm. Fruing & Co., Ltd		1	38 60
134002	Mona Lisa	"	17	M. LeBouthillier	"	5	46 50
100295	Marie Louisa	"	18	Joseph A. Paulin	"	4	41 60
116471	Marie Louise	"	10	Gustave Chiason	"	5	39 50
130999	Mabel Luce	"	11	Philip Luce	Little Shippegan	2	22 80

List of Vessels which received Fishing Bounty, 1915-16—New Brunswick—*Con.*

GLOUCESTER COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	Number of Crew paid.	Amount of Bounty paid.
							$ cts.
130994	Mary M. Florence	Chatham	32	Henry J. Chiason	Caraquet	4	55 60
134003	Marie Noela	"	11	Charles Cormier	"	2	28 70
116478	Marie O	"	11	Fred. D. Robichaud	Shippigan	3	28 70
100957	Mary R	"	12	W. S. Loggie Co., Ltd.	Chatham	4	43 60
116475	Mary Rose	"	17	Robin, Jones & Whitman	Caraquet	4	47 60
137921	Marie Raquette	"	12	Joseph O. Cormier	Mizonette	4	35 60
112150	Mary Star of the Sea	"	15	Luc Friolet	Caraquet	5	44 50
112161	Mary Star	"	15	H. LeBouthillier	"	5	44 50
111844	Mary Star of the Sea	"	14	Robin, Jones & Whitman	"	4	37 60
116477	Mary Star of the Sea	"	20	Ferdinand Savoy	Robichaud Landing	4	43 60
130996	Médaille d'or	"	24	Edmond Lanteigne	Caraquet	5	53 50
100779	Mermaid	"	11	W. S. Loggie Co., Ltd	"	4	34 60
112164	Merry Chistmas	"	13	Célestin Jean	Little Lameque	4	36 60
133924	Merveil	"	12	Arthur Aché	Lameque	2	23 80
100300	Mikado	"	13	Robin, Jones & Whitman	Caraquet	4	36 60
130659	Mildred Elaine	"	20	Wm. Fruing & Co., Ltd	"	5	49 50
134006	Miscou	"	10	Joseph N. LeBouthillier	"	2	21 80
134340	Miscou Belle	"	21	Wm. J. Ward	Miscou Harbsur	5	59 50
134094	Mizonnette	"	13	Prospère Boudreau	Caraquet	4	36 60
133922	Morning Drew	"	10	Edmond Robichaud	Shippigan Island	3	27 70
88669	Morning Star	"	12	Gustave Gionet	Inkerman	1	17 90
117188	Morning Star	"	14	Alexis Noel	Lameque	5	43 50
134321	Noella	"	18	Daze Noel	"	3	35 70
122055	Olive	"	14	Thomas A. Lanteigne	Caraquet	4	37 60
103004	Oriole	"	11	Wm. Fruing & Co.	"	4	34 60
103005	Osprey	"	10	Thomas Mallet	Shippigan	4	33 60
133917	Overseer	"	20	Fabien F. Chiasson	Island River	4	43 60
100776	Patrick	"	11	W.S Loggie & Co., Ltd	Chatham	4	34 60
100297	Palma	"	14	Amédée Aché	Lameque	4	37 60
130656	P.A.L.	"	17	Xavier A. Lanteigne	Caraquet	4	40 60
112125	Pearl	"	14	Pierre A. Doiron	"	4	37 60
103778	Pelican	"	13	Wm. Fruing & Co., Ltd	"	4	36 60
133923	Pembina	"	17	Wm. Fruing & Co.	"	3	34 70
103764	Petrel	"	12	Philorome Rose	"	4	35 60
122623	Pride of the Fleet	"	24	Robin, Jones & Whitman	"	4	47 60
96740	Providence	"	13	J. L. O. LeBouthillier	"	4	36 60
116974	Providence	"	18	M. L. Lanteigne	"	4	41 60
100904	P. T. S.	"	11	Romain Lanteigne	"	4	34 60
100775	Red Gauntlet	"	11	T. H. LeBouthillier	"	4	34 60
137914	Reine Marie	"	20	Patrick E. Lanteigne	"	5	49 50
134322	Remon	"	12	Julien T. Mallet	Shippigan	4	35 60
103586	Remus	"	17	W. S. Loggie Co., Ltd	Chatham	4	40 60
103078	Reward	"	13	Lange Albert	Caraquet	4	36 60
130661	Richibucto Pearl	"	10	Alexander Mallet	Shippigan	3	27 70
97191	Rita	"	12	Robin, Jones & Whitman	Caraquet	4	35 60
111470	River Branch	"	11	Wm. Fruing & Co., Ltd.	"	5	40 50
103946	Robin	"	12	Robin, Jones & Whitman	"	4	35 60
133992	Robichaud	"	10	Fidele Bigeau	Inkerman	3	27 70
103587	Romulus	"	19	W. S. Loggie Co., Ltd	Chatham	4	42 60
92404	Rosa	"	17	Frederic Lanteigne	Caraquet	4	40 60

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List of Vessels which received Fishing Bounty, 1915-16—New Brunswick—*Con.*

GLOUCESTER COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
100968	Rosalie	Chatham	10	Pierre G. Lanteigne.	Caraquet	5	39 50
100773	Rupert	"	12	E. L. Albert	"	4	35 60
133915	Samuel Le Grand	"	14	Alex. Robichaud	Shippigan	3	30 70
74101	Sara	"	11	Francis S. Doiron	Caraquet	5	40 50
100907	Sarah	"	10	F. T. B. Young	"	5	39 50
117190	Saturn	"	10	Dominique Blanchard	Mizonette	4	33 60
134335	Sauvegarde	"	11	Joseph Aché	Upper Lameque	4	34 60
103584	Saxon	"	13	Joseph Baudin	Caraquet	4	36 60
133913	Selonia	"	11	Anthyme Chiasson	Chiasson	3	28 70
100959	Sea Bird	"	10	W. S. Loggie Co., Ltd	Chatham	4	33 60
126254	Sea Duck	"	16	Lazare Lanteigne	Caraquet	4	39 60
100901	Sea Flower	"	12	John P. Lanteigne	"	4	35 60
100914	Sea Flower	"	11	John Chiasson	Miscou Centre	5	40 50
96926	Sea Foam	"	15	John M. Ward	"	5	44 50
96731	Sea Star	"	13	Patrick Albert	Caraquet	4	36 60
130993	Shippigan's Best	"	10	W. S. Loggie & Co.	Shippigan	4	33 60
133914	Shippigan Pearl	"	10	Joseph Brideau	"	3	27 70
133918	Sillery	"	12	Joseph F. Aché	Lameque	3	29 70
100961	Silver Moon	"	14	W. S. Loggie & Co.	Chatham	4	37 60
100788	Sir Charles	"	11	Napoléon E. Gionet	Caraquet	4	34 60
122060	Spark	"	10	Wm. Fruing & Co.	"		15 90
100963	Stanley	"	10	André D. Gionet	"	4	33 60
103087	Stanley	"	10	Daniel D. Chiasson	Island River	4	33 60
133913	Star of Shippigan	"	11	Mathias Chiasson	Shippigan	3	28 70
103767	Stella Maris	"	19	Robin, Jones & Whitman	Caraquet	4	42 60
116972	St. André	"	15	Auguste Noel	Lameque	5	44 50
117187	Ste. Anne	"	13	Luc Noel	"	4	36 60
116473	Ste. Anne	"	14	Onésime Chiasson, sr.	"	5	43 50
117189	Ste. Cecelia	"	13	Stanislas Paulin	"	5	42 50
111469	St. John	"	13	Jean Aché	"	4	36 60
103008	St. Joseph	"	12	Eugene Gauvin	"	4	35 60
112167	St. Joseph	"	10	Raphaël Gionet	Caraquet	5	39 50
122051	Ste. Julie	"	12	Marcelin Noel	Lameque	4	35 60
107776	St. Peter	"	12	John G. Chiasson	Caraquet	4	35 60
134338	St. Simon	"	16	Philorome Chiasson	"	5	45 50
130660	St. Sauveur	"	18	Isaie Chiasson	Lameque	5	47 50
134010	St. Urbain	"	21	Patrice Chiasson	"	4	44 60
137916	Summer Home	"	18	Clement Lanteigne	"	5	47 50
122056	Sunbeam	"	14	Wm. Fruing & Co., Ltd	"	5	43 50
111845	Superior	"	14	Robin, Jones & Whitman		5	43 50
133995	Supple Jack	"	11	Thaddy C. Roussell	Shippigan	4	34 60
103947	Swallow	"	13	Marcin Doiron	Caraquet	5	42 50
103006	Swallow	"	11	J. J. Robichaud	Shippigan	4	34 60
103762	Swan	"	14	Wm. Fruing & Co.	Caraquet	4	37 60
100777	Teutonic	"	11	W. S. Loggie & Co., Ltd	Chatham	4	34 60
134008	T. H. B	"	18	T. H. LeBouthillier	Caraquet	4	41 60
137920	Theophile	"	10	Wm. M. Boudreau	Mizonette	4	33 60
96738	Three Brothers	"	12	J. N. E. Lanteigne	Caraquet	4	35 60
117184	Three Brothers	"	16	W. S. Loggie Co., Ltd.	Shippigan	4	39 60
100918	Tickler	"	12	Robin, Jones & Whitman	Caraquet	5	41 50
134331	Tracadie's Pride	"	11	John A. Babin	Tracadie	3	28 70
134323	Tuxedo	"	12	Hector De Grace	Shippigan	2	23 80
112159	United Empire	"	17	T. O. LeBouthillier	Caraquet	5	46 50
137911	Valerina	"	18	Alexandre Frigault	"	4	41 60
103285	Valkyrie	"	12	Hubert Chiasson	"	4	35 60
103775	Victoria	"	16	W. S. Loggie Co., Ltd.	Shippigan	5	45 50

List of Vessels which received Fishing Bounty, 1915-16—New Brunswick—*Concluded.*

GLOUCESTER COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	Number of Crew paid.	Amount of Bounty paid.
							$ cts.
133921	Vika	Chatham	29	Maxime Poulin	Little Lameque	4	52 60
117183	Vina	"	14	Amédée Noël	Lameque	4	37 60
134328	Vitaline	"	11	Philippe Gagnon	Inkerman	2	22 50
100995	Voltaire	"	10	Luc Mailloux	Caraquet	4	33 60
100966	Von Moltke	"	11	Pierre J. Frigault	"	3	28 70
103588	Vulture	"	13	W. S. Loggie Co., Ltd.	Chatham	4	36 60
122054	White Fish	"	13	Eutrope Chiasson	Lameque	5	42 50
100953	White Wings	"	10	F. T. B. Young	Caraquet	4	33 60
137922	Wing	"	10	John Bézeau	Miscou Harbour	3	27 70
100973	World's Fair	"	11	Désiré Doiron	Caraquet	5	40 50
103079	Wren	"	11	Joseph B. Paulin	"	4	34 60
100920	Zephyr	"	12	George Gionet	"	5	41 50

KENT COUNTY.

130665	Fulta	Richibucto	14	George H. Long	Richibucto	2	25 80
130663	Herb Curwin	"	10	John Curwin	"	3	27 70
130662	Jardineville	"	10	Albert Arseneau	Jardineville	2	21 80
116689	Joseph Doucette	"	10	Albert Daigle	Little North West	2	21 80
130664	Lapewalem	"	10	Mrs. Joseph Doucette	Rexton	1	15 90
116684	Ocelot	"	11	W. E. Forbes	Richibucto	3	28 70
126777	Samuel G.	"	10	Andrew Loggie	"	2	21 80
126773	S. and G.	"	10	Sylvestre Gray	St. Charles	2	21 80
166685	Sea Adder	"	10	W. E. Forbes	Richibucto	3	27 70
130667	Silver Fox	"	13	John Villa Caisey	Buctouche	2	24 80
126722	Sylvalee	"	10	James Legoof	Richibucto	3	27 70
126774	Wawota	"	11	William Long	"	2	22 80

NORTHUMBERLAND COUNTY.

103511	Maple Leaf	Chatham	13	Donald Loggie	Burnt Church	4	36 60
92420	Mary Louise	"	13	Donald Loggie	Losier Settlement	3	30 70
137923	Mary Swan	"	10	Dan McIntyre	Eel River	3	27 70

ST. JOHN COUNTY.

126802	Dandy K	St. John	12	Walter D. Wilson	Lorneville	1	17 90
88273	Lillian E.	St. Andrews	13	David McAdam	West St. John	4	36 60
134181	Olive Murray	St. John	22	Patrick Murray	Dipper Harbour	4	45 60
116964	Tethys	St. Andrews	20	A. G. Thompson	"	2	31 80
103704	Whisper	Yarmouth	31	Charles Harkins	"	3	48 70

WESTMORLAND COUNTY.

122621	Rustic	Chatham	10	Joseph Hebert	Shediac	2	21 80

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LIST of Vessels which received Fishing Bounty, 1915-16—*Concluded.*

PROVINCE OF PRINCE EDWARD ISLAND.

KINGS COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew paid.	Amount of Bounty paid.
							$ cts.
117096	Alaska	Charlottetown	10	J. A. Harding	Souris	3	27 70
112021	Amie M	Canso	29	Tho. Poole	"	4	52 60
94643	Carrie M. C.	Lunenburg	39	Allan McLeod	Beach Point	7	80 30
103328	Ella May	Port Hawkesb'y	34	John Hemphill	Georgetown	4	57 60
122081	Frank	Charlottetown	10	J. M. Cheverie	Souris	5	39 50
116740	Hilda M. Horton	Halifax	29	Watson O'Hara	Souris West	5	58 50
121904	Iona and Maggie	Barrington	11	Mathew Munroe	Souris	2	22 80
107751	Minnie Laura	Charlottetown	31	Reuben Penny	Murray Harbour	6	66 40
107985	Muriel	Shelburne	25	Milton Sencabaugh	" "	6	60 40
112378	Olive S.	Charlottetown	26	A. W. Gosbee	" River	1	31 90
107770	Success	"	15	J. W. Jenkins	" "	2	26 80

PRINCE COUNTY.

107766	Annie M	Charlottetown	20	P. J. Perry	Palmer Road North	5	49 50
134334	Cleaver	Chatham	12	Anthony Perry	Peterville	4	35 60
130823	Dagon	Lunenburg	12	Joshua Hutt	Alberton	3	29 70
122010	Ena T	"	16	Geo. McBeth	"	5	45 50
134204	William P	Charlottetown	13	Henry Perry	Palmer Road	3	30 70

QUEENS COUNTY.

100445	Carrie O	Canso	12	Thos. Hiscott, Sr	Stanley Bridge	5	41 50
117059	Fortuna	"	14	Jonathan Delaney	French River	3	31 70
107763	Guinea	Charlottetown	10	Boyce Harding	"	4	33 60
130343	Libby P	"	11	J. N. Pineau	North Rustico	3	28 70

PROVINCE OF QUEBEC.

BONAVENTURE COUNTY.

103830	Annie Bennett	Paspebiac	15	Michel Bennett	Chaleur	3	32 70

GASPE COUNTY.

85409	A. C. Newhall	Magdalen Islds.	32	Luc Boudreau	Grindstone	11	96 90
126907	Delima	Halifax	17	R. J. Leslie & Co	Amherst Harbour	4	40 60
111440	M. A. Josey	"	17	"	"	5	46 50
100696	Marion Emerson	Pictou	30	Vital Boudreau	Grindstone	8	77 20
85400	Minnie M	Magdalen Islds.	13	Honore Cormier	Amherst	6	48 40
85399	Minnie May	"	10	William Boudreau	Amherst Harbour	5	39 50
85408	Onato	"	35	Nelson Richard	House Harbour	11	99 90
92571	Primrose	Halifax	14	Fortune Cormier	Amherst	4	37 60
96727	Ryse	Chatham	11	Nelson Deraspe	Capes	6	46 40
111430	Shamrock	Halifax	23	A. V. Vigneau	Amherst	6	58 40
107188	Stella	Charlottetown	15	Phidime Depres	La Verniere	5	44 50

SAGUENAY COUNTY.

103060	Edith M	Quebec	20	M. H. Foley	Esquimaux Point	4	53 60
116525	Gatherer	Lunenburg	15	John Stubbert	Bluff Harbour	6	50 40

APPENDIX 12.

NATURAL HISTORY REPORT.

To the Superintendent of Fisheries.
Ottawa.

SIR,—I have the honour to submit my natural history report for the fiscal year 1915-16.

The two things of paramount importance concern the Canadian Fisheries Museum and observations of the lobster at the Long Beach, Digby Neck, retaining pound.

During the year the features of the Museum have been considerably altered, owing to the readjustment of natural history objects in order that new acquisitions might be placed on exhibition. There are now two spacious rooms instead of one open to the public. The collection of fishes, to which a number of new specimens have been added, is still contained in the down-stairs room, but certain cases or objects have been removed to the up-stairs room, and their places supplemented either by new acquisitions, or by objects which had been stored until space was available in order to display them. In the main those objects are shown in plate-glass cases, and embrace collections of birds, birds' eggs, shells, crustaceans, star-fishes, sea urchins, etc.

The collection in the up-stairs room is an important feature of the museum. A skeleton of a fin-back whale (51½ feet long), mentioned in the report of last year, is now to be seen by the general public, and the floor space of the room contains a series of large plate-glass cases, in which a sea-lion, an adult walrus, a young walrus, a fur-seal, two hair-seals, a papier-mache model of a grampus and two octopi, besides which numerous small natural history objects of a general character are shown. Around the walls of the room are shown a collection of water birds, some of which were acquired by exchange from the Victoria Memorial Museum, and of these special mention is made of the collection of ducks, which embraces specimens of the great majority of the ducks indigenous to the waters—either fresh water or marine—of the Dominion.

During the fiscal year the museum was visited by 45,110 persons.

As regards the observations carried on at the Long Beach lobster pound, some interesting things are here mentioned. It was determined by Dr. Knight, of Queen's University (who was carrying on certain observations, chiefly relative to the newly hatched lobsters), and myself, that there were instances of annual spawning among the lobsters. Lobsters, also, were seen to moult, or, in some cases, endeavoured to moult, but died in the attempt, which goes to show that the moulting time is a critical period with the lobster. Another thing which I observed was that, instead of the moulted lobster seeking to hide itself, as is usually alleged, it displayed itself conspicuously, and being formidable looking in its soft, but new and vividly coloured livery, other lobsters that ventured to approach it would, as it raised its flabby claws, immediately retreat, whereas, actually, they could have torn the lobster, when out of its shell, to pieces. This, then, was evidently a provision of nature.

Success attending the operations of the pound concerned the redistribution of mother lobsters, from the swimmerets of which the eggs were ready to drop within twenty-four hours or so after they had been put into water areas, from which, for the most part, they had been taken.

ANDREW HALKETT,
Naturalist, Dominion Fisheries.

APPENDIX 13.

LISTS of United States Fishing Vessels which have entered Canadian Ports on the Atlantic and Pacific Coasts, followed by a list of United States Fishing Vessels to which *Modus Vivendi* Licenses were issued during the year ended March 31, 1916.

ATLANTIC COAST PORTS.

Number.	Name of Vessel.	Tonnage.	No. of Men.	Magdalen Islands.	Charlottetown and Outports.	North Sydney and Outports.	Sydney and Outports.	Arichat and Outports.	Port Hawkesbury and Outports.	Canso and Outports.	Halifax and Outports.	Lunenburg and Outports.	Liverpool and Outports.	Lockeport and Outports.	Shelburne and Outports.	Barrington Passage and Outports.	Yarmouth and Outports.	Totals.
1	Adeline	58	17										1					1
2	Admiral	5	5								1							1
3	Agnes	75	18	1		1		1		2				1	4		2	12
4	Albert Brown	15	5				3	1		2								6
5	Albert D. Willard	23	9							1	1						1	3
6	Albert W. Black	51	9							4	1		4					9
7	Aloha	100	18	1						1								2
8	Alice	62	20													1	4	5
9	America	19	5														1	1
10	Angeline C. Numan	58	17										4	1				5
11	Angie B. Watson	36	11			1	11							1				13
12	Anna	8	6				7			2				1	1			11
13	Annie M. Parker	100	21				1			2							2	5
14	A. Pratt Andrew	92	24	1					1	3					3	1		9
15	Arabia	86	18		1	2				1	1							5
16	Arethusa	107	25	1			3		1		1		1	1	6	1	2	17
17	Aspinet	83	18							6					4	1	2	13
18	Atalanta	74	18					1		1					1			3
19	Arthur James	95	19		1	2				3		1			1			8
20	Athlete	96	22			1		1	1	5				1	3			12
21	Avalon	85	20			1		1	1	3				3	2	1		12
22	Bertha A	10	4													1		1
23	Benjamin A. Smith	91	25				4			1		2	1		2			10
24	Bernice and Bessie	27	8								1		1					2
25	Blanche	78	16			1	1			1					1			4
26	Bohemia	86	18			1	1		1	2							3	8

ATLANTIC COAST PORTS—*Continued.*

Number.	Name of Vessel.	Tonnage.	No. of Men.	Magdalen Islands.	Charlottetown and Outports.	North Sydney and Outports.	Sydney and Outports.	Arichat and Outports.	Port Hawkesbury and Outports.	Canso and Outports.	Halifax and Outports.	Lunenburg and Outports.	Liverpool and Outports.	Lockeport and Outports.	Shelburne and Outports.	Barrington Passage and Outports.	Yarmouth and Outports.	Totals.
27	Blanche F. Irving	14	8				3			2								5
28	Bay State	109	26	1		2				3					7	3		16
29	Claudia	79	18				1											1
30	Catherine Burke	92	22	1			2							1	1			5
31	Cavalier	96	22							2				1	1	1		5
32	Catherine	103	27			2									1			3
33	Clintonia	105	22			2							4				1	7
34	Cloudes	79	17								1							1
35	Commonwealth	93	23							1	1		5		1			8
36	Conqueror	95	23	1					1	1			1	1	7	1		13
37	Constellation	89	19									1						1
38	Corona	78	21								1		1		4			6
39	Corsair	10	7								1							1
40	Corsica	71	18									1						1
41	Cruiser	10	7			1	2			4	1		1	2				11
42	Dorcas	14	9				10			1		1	5	3	1			21
43	Elizabeth N	102	21												2			2
44	Edward F. Black	35	11				8			1	1				1			11
45	Eleanor	36	11				9			7	1		1		1			19
46	Eliza A. Benner	14	6				1			1				1				3
47	Elk	83	22	1						5	1			1	3			11
48	Ella M. Doughty	51	6			1												1
49	Ellen and Mary	97	18												4			4
50	Elmer E. Gray	84	21						1					1				2
51	Elsie	98	23	1			2			4			3		4		1	15
52	Elva L. Sparling	49	15				2			6					2		2	12
53	Emily Sears	22	10				5			1	1		2					9
54	Esperanto	91	23					1		3			2	2	2	1		11
55	Essex	84	8			1												1
56	Esther Gray	17	8				11			1	1		3		1			17
57	Ethel B. Penny	56	17														2	2

58	Ethel Marion	10	7			1	3	1		2	1	2	5	1			1	17
59	Etta Mildred	45	18												1		2	3
60	Eva and Mildred	43	9			1	5											6
61	Evelyn M. Thompson	57	17									1	4		1			6
62	Esther May	17	6				1											1
63	Fannie J. O'Hara	87	22												1			1
64	Fannie A. Smith	87	20		1				1		1		1					4
65	Fannie Belle Atwood	82	23										2		4			6
56	Fannie E. Prescott	87	20	1										1	8	1		11
67	Fanny Reed	20	7							2								2
68	Flavilla	36	9			1	7			2			3				1	14
69	Flora L. Oliver	71	18							2			10					12
70	Florida	19	8				8			3	1		3					15
71	Frances J. O'Hara	83	21							2			2					4
72	Frances P. Mesquita	71	22	1		1				8	1		4		3		3	21
73	Frances S. Grueby	94	19							1								1
74	Gracie Smith	17	6				1				1							2
75	Gardner Heath	13	5				1			5								6
76	Geo. B. Cluett	155	8			1												1
77	George E. Klinck	97	22								1							1
78	Georgiana	87	20							3	1		1	2	7			14
79	Georgina	62	18							1			1		2			4
80	Gertrude de Costa	61	17										3					3
81	Gladys and Nellie	52	19							7			1					8
82	Gladys B. Simmons	9	5										3			1		4
83	Good Luck	66	20													3	3	6
84	Gordon Heath	13	5				3				1						1	5
85	Governor Foss	88	22	1										2	6	1		10
	Gracie Smith II	17	6			1	5											6
	Harry and Thelma	10	5				4											4
88	Hiram Lowell	95	21				1								1			2
89	Harmony	81	18					1		1			1	2	4	2	1	12
90	Harvard	72	18										1					1
91	Hattie A. Hickman	72	20														1	1
92	Hazel R. Hines	79	21			3				6				1	1		3	14
93	Helen B. Thomas	45	17													1		1
94	Helen E. Murley	5	5						1		1	1	1					4
95	Helen G. Wells	67	20											1		1		2
96	Henrietta	62	16														3	3
97	Hester	12	6							3	1					1		5
98	Hockomock	22	9			1	12			1					1			15
99	Hortense	52	18												3	1	1	5
100	Howard	72	18									1						1
101	Independence	109	10												1			1
102	Ingomar	103	22			1	1	1		2			2		5			12
103	Imperator	99	23	1			3			6	1	1	2	5	1			20

ATLANTIC COAST PORTS—*Continued.*

Number.	Name of Vessel.	Tonnage.	No. of Men.	Magdalen Islands.	Charlottetown and Outports.	North Sydney and Outports.	Sydney and Outports.	Arichat and Outports.	Port Hawkesbury and Outports.	Canso and Outports.	Halifax and Outports.	Lunenburg and Outports.	Liverpool and Outports.	Lockeport and Outports.	Shelburne and Outports.	Barrington Passage and Outports.	Yarmouth and Outports.	Totals.
104	Jessie and Phebe	88	18												1			1
105	James and Esther	47	12			1	3			4			3					11
106	James W. Parker	96	23	1						5	1		1	2	10	2	2	24
107	Jeanette	66	20							4		2						8
108	Jessie de Costa	89	23									1	3		2			6
109	J. J. Flaherty	124	23			3	1			2					1		3	10
110	John Hays Hammond	92	22	1		1									5	2	1	10
111	John J. Fallon	77	23										2		3	2		7
112	J. R. Atwood	41	11													2		2
113	Josephine de Costa	84	21									1	6		1			8
114	Jubilee	61	20														4	4
115	Juno	85	23	1					1	2			2	5	7			18
116	Katie L. Palmer	30	9				5			7			1		1			14
117	Kineo	83	18				1	1		1	1				2			6
118	Lizzie Griffin	71	17				1											1
119	Lackawanna	31	11								1							1
120	Lafayette	12	8				10			8	1		2		2			13
121	Laverna	95	24	1			1			3					3	1		9
122	Lenora Silviera	63	18										2		1			3
123	Lillian	95	18			2			1				5					8
124	Lochinvar	34	18				4			2								6
125	Lottie G. Merchant	76	19									2						2
126	Little Ruth	12	11													1		1
127	Little Elsie	11	11													12		12
128	Louisa R. Sylvia	92	23												3			3
129	Lucinda I. Lowell	77	23													2		2
130	Mabelle E. Leavitt	12	6				6	1		2			2		1			12
131	Manonet	46	11				2			1	1		1					5
132	Margaret	79	18	1					1	1			2	1	4			10
133	Marsala	54	15		2				1	2	1	1			1			8
134	Mary	97	23							2	1	1			2			6

135	Margaret Haskins	70	18										3					3
136	Mary de Costa	67	16			1								1				2
137	Mary E. Hardy	77	19								1			1				2
138	Mary E. Sennett	11	8			1	3			7						3	1	15
139	Mary E. Smith	11	8				1				1							2
140	Mary F. Curtis	81	18	1					1	2	1			5		2	1	1	14
141	Mary F. Sears	69	17											2					2
142	Mary J. Beale	20	9				11			1				3	3	1			19
143	Mary T. Fallon	48	10				3			2									5
144	Matthew S. Greer	66	21											6		2		2	10
145	Maxine Elliott	75	18			1				2								2	5
146	Maxwell	12	5							2				2					4
147	Myrtle H. Perry	36	8				4			1									5
148	Mettacomet	22	8				4			2				2					8
149	Mildred J	5	5			1	3	1						3					8
150	Mildred Robinson	86	20							1	2			2					5
151	Monarch	83	20								1	1							2
152	Monitor	100	18						1	2	1			1		1			6
153	Mooanam	72	20	1		1	1			2				1	1	2	2		11
154	Morning Star	91	22			1			1						2	6		10	20
155	Motor	17	9				6			1	1			1		1			10
156	Muriel	83	19	1						2						11			14
157	Margaret Dillon	48	18													1	1		2
158	Margie Turner	40	14				9												9
159	Mary A. Gleason	32	6													1			1
160	Mystery	78	22													3	3		6
161	Natalie Hammond	67	20							1						5			6
162	Nickerson	13	5											1	1	1			3
163	Norma	65	18									1	1						2
164	Nan Lee	18	9				2												2
165	Oriole	104	22	1					1	4				1	1	3	2		13
166	Onato	105	23	1		1				4				1	1	8	2	1	18
167	Paragon	85	18							3	1	1		1		2	1		9
168	Patriot	58	18								1	1				3			5
169	Pauline	75	13											1					1
170	Pontiac	75	20											2		2			4
171	Preceptor	89	18	1					1	5	1			2	1	3			14
172	Premier	97	23				3		1	2				2	1	6	5		20
173	Priscilla	27	8			1	9	1		1				1					13
174	Priscilla II	7	6							4				3					7
175	Progress	13	6				4			2	1			3					10
176	Ralph Hall	85	19								1	2				1			4
177	Ralph Russell	48	15															2	2
178	Ramona	58	6			2													2
179	Rebecca	49	18															2	2
180	Regina	111	23				1	1								1			3

ATLANTIC COAST PORTS—*Continued.*

Number.	Name of Vessel.	Tonnage.	No. of Men.	Magdalen Islands.	Charlottetown and Outports.	North Sydney and Outports.	Sydney and Outports.	Arichat and Outports.	Port Hawkesbury and Outports.	Canso and Outports.	Halifax and Outports.	Lunenburg and Outports.	Liverpool and Outports.	Lockeport and Outports.	Shelburne and Outports.	Barrington Passage and Outports.	Yarmouth and Outports	Totals.
181	Reliance	10	11			1	3			1		1				12		18
182	Rhodora	81	18	1									1		2			8
183	Richard	90	23			1					1							8
184	Richard J. Nunan	55	11			1	6											2
185	Rita A. Veaton	48	10			1	4											5
186	Rita A. Viator	22	10			1	2						2		1			8
187	Robert and Richard	89	22			1				1			1	2	4	4	1	14
188	Rob Roy	77	19								1	1	1	1	1			5
189	Romance	96	18		2		1		1		1		3	1				9
190	Rose Standish	25	9				5			1								6
191	Ruth	56	16							3			1	1	2		8	15
192	Ruth and Margaret	77	22	1					1	1			4	1	6			14
193	Reading	92	25												6			6
194	Robert and Arthur	78	21												3			3
195	Sadie M. Nunan	36	9				4			1								5
196	Saladin	89	19		1	2				2	1	1	1					8
197	Senator	74	18				1	1										2
198	Senator Gardner	94	21			1	1			1							2	5
199	Smuggler	91	23			1	1						1	4	7			14
200	Smuggler	56	14											1				1
201	Somerville	82	23							1						1		2
202	Stiletto	99	23			1	8		1	8	1			1	3	2		25
203	Stranger	52	9			2	2											4
204	Sturgeon	52	9								1							1
205	Sylvania	99	23			1		1	1	3					4			10
206	Tempest	24	3													2		2
207	Tacoma	71	20												4			4
208	Tattler	135	26							2					2			4
209	Tecumseh	18	9				10			3		1						14
210	Teddy Roosevelt	6	4								1							1
211	Thomas S. Gorton	92	23		1	1		1		4	1				6			14
212	T. M. Nicholson	90	22				2	1							2			5

213	Topsail Girl	53	11				9			6	1						16
214	Two Brothers	6	5							6	1		3	3			13
215	Thos. Brundage	69	20												1		1
216	Thomas J. O'Hara	83	18												1		1
217	Vanessa	84	23				1			2	1		2		2		8
218	Victor	75	18			1							2				3
219	Victor and Ethan	53	18										10		2	1	13
220	Vida M. McKeown	83	19										1				1
221	Viking	40	17										1				1
222	Viking	19	6				8			2		1	1				12
223	Virginia	73	21												2	1	3
224	Virginia	8	6			1	5			3			1				10
225	Volant	97	16							1							1
226	Waldo L. Stream	81	18	1			1			1	1				3		7
227	Waskaki	47	12										1				1
228	W. H. Reid	9	6							2			1				3
229	W. M. Goodspeed	54	17													1	1
230	Yankee	18	9			1				3					1		5
	Totals	14,153	3,608	27	9	64	315	18	22	304	57	32	210	69	316	102	88	1,633

PACIFIC COAST PORTS.

Number.	Name of Vessel.	Tonnage.	No. of Men.	Nanaimo.	Prince Rupert and Outports.	Vancouver and Outports.	Totals.
1	Alameda	3	4		6		6
2	Alaska	44	15		7		7
3	Albatross	40	13		9		9
4	Alten	43	15		7	2	9
5	Alvilda	26	8		4		4
6	Agnes B.	8	3		15		15
7	Annie	11	5		3		3
8	Annie J. Larsen	25	11		2		2
9	Arrah Wanna	7	3		1		1
10	Athena	56	17		9		9
11	Atlantic	25	11		5		5
12	Atlin	43	15		1		1
13	Aurora	7	3		12		12
14	Carona	19	11		9		9
15	Constance	53	15		8		8
16	Constitution	39	13		6		6
17	Cora	4	3		9		9
18	Corliss	13	5		4		4
19	Daisy	18	8		1		1
20	Dip	5	2		2		2
21	Director	12	4		4		4
22	Dolphin	7	3		4		4
23	Eagle	19	8		4		4
24	Elsie	14	5		1		1
25	Eunice	25	6		2		2
26	Eureka	2	2		4		4
27	Evolution	17	5		1		1
28	Forward	6	3		1		1
29	Fosna	5	3		1		1
30	Fram	4	3		7		7
31	G. Teckla	15	5		2		2
32	Get the Hook	10	4		1		1
33	Gjoa	3	3		6		6
34	Hazel	7	3		1		1
35	Helgeland	56	15		5		5
36	Hida	6	3		1		1
37	Hodal	4	2		4		4
38	Idaho	52	17		4		4
39	Independent	151	38		3		3
40	Jennie F. Decker	16	8		6		6
41	J. P. Todd II	12	5		1		1
42	Jupiter	10	4		2		2
43	Katie	12	2		3		3
44	King and Wing	97	19		2		2
45	Knickerbocker	101.	25		2	5	7
46	Kodiak	38	13		4		4
47	Kong Sverre	15	8		2		2
48	La Paloma	14	11		9		9
49	Liberty	44	15		9		9
50	Lief	5	2		4		4
51	Lief E.	18	8		4		4
52	Lillian S.	7	3		8		8
53	Lincoln	5	3		11		11
54	Lister	14	6		5		5
55	Lumen	5	5		1		1
56	Mabel B.	5	3		1		1
57	Madeline J	21	8		4		4
58	Magnolia	25	8		5		5
59	Malolo	29	11		13	1	14
60	Manhattan	134	36		4	13	17
61	Mars	9	4		3		3
62	Mira	3	3		5		5
63	Morengen	17	7		5		5
64	Myrtle Enderson	45	15		5		5

PACIFIC COAST PORTS—*Concluded.*

Number.	Name of Vessel.	Tonnage.	No. of Men.	Nanaimo.	Prince Rupert and Outports.	Vancouver and Outports.	Totals.
65	Narrona	7	3		3		3
66	Nellie	4	3		7		7
67	New England	70	36	12	1	15	28
68	Nomad	5	4		1		1
69	North Cape	5	3		7		7
70	North Pole	4	2		2		2
71	Olga	5	3		5		5
72	Olympic	30	12		5		5
73	Omaney	34	13		5	1	6
74	Orient	48	13		7		7
75	Pacific	26	11		2		2
76	Panama	34	13		2		2
77	Petrel	5	3		5		5
78	Pioneer	48	13		1		1
79	Polaris	45	15		9		9
80	Presho	14	6		4		4
81	Progress	115	18		6		6
82	Puritan	53	15		2		2
83	Rainier	5	3		7		7
84	Raven	6	3		3		3
85	Republic	51	15		9	4	13
86	Roald	12	3		3		3
87	Roald Amundsen	16	5		7		7
88	Rolfe	10	4		2		2
89	Rolfh	6	3		5		5
90	Samson	7	3		2		2
91	San Jose	14	13		9		9
92	San Juan	128	37		3		3
93	Scandia	79	20		4		4
94	Sea Gull	13	6		3		3
95	Searchlight	7	1		1		1
96	Seattle	55	15		6		6
97	Selma	5	2		3		3
98	Senator	11	11		2		2
99	Seymour	44	13		10		10
100	Shamrock	21	11		9		9
101	Sitka	50	14		11		11
102	Starr	187	35		2		2
103	Stranger	6	3		7		7
104	Success	5	3		2		2
105	Sumner	34	15		5		5
106	Teckla	15	5		2		2
107	Teddy J	13	4		2		2
108	Thelma	23	8		7		7
109	Three Brothers	5	3		1		1
110	Tipperary	3	1		1		1
111	Tom and Al	57	15		9	1	10
112	Tordenskjold	39	13		8		8
113	Tyee	89	19		6		6
114	Valhalla	5	3		2		2
115	Vansee	43	15		8		8
116	Venus	25	8		7		7
117	Vesta	13	5		6		6
118	Viking	3	3		1		1
119	Volunteer	8	5		1		1
120	Washington	24	11		3		3
121	Wireless	17	7		3		3
122	Yakutat	41	13		4		4
123	Yukon	5	2		1		1
124	Zilla May	56	13		2		2
	Totals	3,413	1,121	12	557	42	611

List of United States Fishing Vessels to which *Modus Vivendi* Licenses were issued during 1915-16.

Name of Vessel.	Port of Registry.	Tonnage.	Port of Issue.	Amount.
				$ cts.
Kineo	Gloucester	83	Halifax	124 50
Robert & Richard	"	89	Canso	133 50
Stiletto	"	100	"	150 00
Laverna	"	95	"	142 50
Muriel	Boston	83	Shelburne	124 50
Smuggler	Gloucester	91	Liverpool	136 50
Tattler	"	135	Shelburne	202 50
A. Pratt Andrew	"	92	Canso	138 00
Governor Foss	"	88	Sandy Point	132 00
Sylvania	"	99	Canso	148 50
Cavalier	"	96	"	144 00
Aloha	"	100	"	150 00
Imperator	"	99	"	148 50
Senator	"	74	Arichat	111 00
Juno	"	85	Sandy Point	127 50
Thomas S. Gorton	"	92	Shelburne	138 00
Harmony	"	81	Port Mulgrave	121 50
Margaret	"	79	Liverpool	118 50
Clintonia	"	105	Pubnico	157 50
Arethusa	"	107	"	160 50
Monitor	"	100	Canso	150 00
Elsie	Boston	98	"	147 00
Agnes	Gloucester	75	Shelburne	112 50
Ingomar	"	103	"	154 50
Georgina	Boston	87	Lockeport	130 50
Ruth & Margaret	Gloucester	77	Port Hawkesbury	115 50
Atalanta	"	74	Arichat	111 00
Premier	"	97	Canso	145 50
Rhodora	"	81	Liverpool	121 50
Waldo L. Stream	"	81	Shelburne	121 50
Onato	Boston	105	Sandy Point	157 50
Mooanam	Gloucester	72	"	108 00
Mary F. Curtis	"	85	Liverpool	127 50
T. M. Nicholson	Bucksport	90	Shelburne	135 00
Avalon	Gloucester	85	Canso	127 50
Preceptor	"	89	"	133 50
Flora L. Oliver	"	71	"	106 50
Bay State	"	110	North Sydney	165 00
Oriole	"	104	House Harbour	156 00
Fannie E. Prescott	Boston	87	"	130 50
John Hays Hammond	Gloucester	92	Canso	138 00
Catherine Burke	"	92	House Harbour	138 00
Regina	Bucksport	111	Shelburne	166 50
Blanche	Gloucester	78	Louisburg	117 00
Elizabeth N.	Bucksport	102	Shelburne	153 00
Esperanto	Gloucester	91	Canso	136 50
Elk	Boston	83	Fox Bay	124 50
Vanessa	"	84	Clark's Harbour	126 00
Arabia	Gloucester	86	Souris	129 00
Inno	"	85	Shelburne	127 50
Georgiana	Boston	87	Halifax	130 50
Morning Star	Gloucester	85	Yarmouth	127 50
Ingomar	"	103	Sandy Point	154 50
Preceptor	"	89	Halifax	133 50
Monitor	"	100	"	150 00
Viking	Boston	40	Liverpool	60 00
Laverna	Gloucester	95	Shelburne	142 50
Robert & Richard	"	89	Liverpool	133 50
John Hays Hammond	"	92	Shelburne	138 00
Waldo L. Stream	"	81	Halifax	121 50
Margaret	"	79	Canso	118 50
Somerville	Boston	82	Sandy Point	123 00
Stiletto	Gloucester	99	"	148 50
Arethusa	"	107	"	160 50
Athlete	"	96	"	144 00

Issuing Vessels to which *Modus Vivendi* Licenses were d during 1915-16—*Concluded.*

Name of Vessel.	Port of Registry.	Tonnage.	Port of Issue.	Amount.
				$ cts.
Avalon	Gloucester	85	Canso	127 50
Annie M. Parker	"	100	Yarmouth	150 00
Hazel R. Hines	"	79	Pubnico	118 50
Francis P. Mesquita	"	71	Halifax	106 50
Romance	"	96	Wedgeport	144 00
J. J. Flaherty	"	124	"	186 00
Squanto	"	95	"	142 50
Arabia	"	86	Tusket	129 00
				9,912 00

APPENDIX 14.

FISHERIES PATROL SERVICE.

The following reports on the work of the vessels comprising the Fisheries Patrol fleet in 1915-16, are submitted by the inspectors whose districts the boats respectively serve:—

REPORT ON THE WORK OF PATROL BOATS "C" AND "E."

District No. 2, N.S.

To the Superintendent of Fisheries,
Ottawa.

"C"

Sir,—Patrol boat "C," Capt. Ed. De Young, was employed from June 4 to July 1 in patrolling that part of the coast of Halifax from Georges island, Halifax harbour, to the Lunenburg county line, where the close season for lobster fishing was in force. After June 20 she patrolled from the Lunenburg county line to Chedabucto bay, Guysboro county. Fog and heavy winds prevailed during the greater part of the season. Overseer Rowlings went on board July 22 and visited his district from Halifax city to Ship Harbour. Overseer John A. Dillon went on board August 28, and visited his district from Isaac's Harbour to and including Chedabucto bay. On October 8 Overseer Rowlings went on board and inspected his district. Hearing of illegal fishing at Marie Joseph, Overseer Cooper came on board on October 18, and patrolled the coast at this point. On December 3 Overseer Dillon came on board and proceeded to Dover to investigate complaints of illegal fishing.

"E"

This patrol boat, in charge of Capt. Manson B. Fanning, was employed during the first part of the season in connection with the lobster hatchery at Arichat. On June 26 she commenced patrolling the coast waters from the strait of Canso to New Brunswick. During July the boat was in Charlottetown having electric lights installed. From July 31 to November 5 she was employed in patrolling the coast and enforcing the fishery regulations. In every instance where lobster traps were found, the traps were broken and the gear removed and stored until sold. The proceeds of the sales were placed to the credit of the Receiver General.

R. HOCKIN,
Inspector of Fisheries.

REPORT ON WORK OF PATROL BOATS "A," "B," "F," AND "SEARCH."

Patrol boat "A," Capt. Hadley Blackford, was engaged in the patrol of the Eastern Shelburne district, during the close season for lobster fishing, from June 1 to December 15. Patrol boat "B," Capt. John Bateman, was engaged in Yarmouth

County during the same period. Patrol boat "F," Capt. Charles Blades, was employed in lobster protection in Barrington bay and Peel island district. The gasoline sloop *Search,* Capt. Ben. Wright, patrolled the waters of Lunenburg county during the period referred to, and was engaged for the waters of Digby and Annapolis from June 15 to January 15.

I am, sir,
Your obedient servant,

WARD FISHER,
Inspector of Fisheries.

REPORT ON THE WORK OF THE PATROL BOATS "PHALAROPE," "G" AND "SEA GULL."

District No. 1, N.B.

To the Superintendent of Fisheries,
Ottawa.

"PHALAROPE."

Sir,—This boat is in command of Capt. Arthur Mitchell and was in commission during the entire year. Generally speaking this boat covers all the district, excepting Grand Manan. During the winter months the chief work is to prevent under-size lobsters being taken in Charlotte county. In the summer months the duties are many —such as preventing the destruction of pollock by use of explosives, destroying lobster-traps put out during the close season, and to prevent violations of the regulations in the sardine fishery. In all these matters the boat rendered satisfactory service.

"G"

Patrol boat "G" arrived from her builders at Port Hawkesbury during the last of June, and immediately went into commission, with Capt. Coleman Green in command. This boat works for a portion of the season in conjunction with Special Guardian Cossaboom, White Head, maintaining a patrol of the "Ripplings" fishing grounds, so as to prevent the use of explosives among the schools of pollock. During the fall months it cruises the lobster ground to prevent traps from being put out before the legal open season, and during the winter months cruises all around Grand Manan to prevent the fishermen from saving small lobsters. I am of the opinion that the lobster patrol service was very much improved as a result of the patrol so maintained; yet at the same time, owing to the fact that the fishermen have large and fast gasoline boats and that it is only a short run to Eastport, Maine, where they can trans-ship small lobsters, no doubt considerable quantities were saved and sold.

"SEA GULL."

This boat was in charge of Overseer Worrell, and was in commission from August 1 to December 1. Her chief duties were to enforce the sardine regulations. Good results were obtained from this service, but the engine in the boat is too small and nearly worn out. I hope to have a new and larger one installed before next season.

I am, sir,
Your obedient servant,

J. F. CALDER,
Inspector of Fisheries.

REPORT ON THE WORK OF PATROL BOATS "HUDSON," "SELLERY," AND "GLADYS F."

To the Superintendent of Fisheries,
Ottawa.

"HUDSON."

SIR,—Captain Goodwin, of patrol boat *Hudson,* was engaged between May 19 and 30 patrolling along the coast between cape Tormentine and Chockfish, preventing the setting of lobster traps before the season opened. Some lobster traps and lines were seized off Cocagne bay on the 24th May. After May, she was transferred to Miramichi bay to guard the salmon industry, where she succeeded in keeping fishermen from operating with drift nets inside the three-mile limit.

The boat continued in this district until September 8, when she was again transferred to the district between cape Tormentine and Chockfish. On September 10 she destroyed lobster traps off cape Spear, and on September 15 seized two lobster lines and destroyed lobster traps off Shemogue.

Owing to difficulties with the engine, valuable time was lost on the Miramichi, but more especially during the period between cape Tormentine and Chockfish. Except for this time lost with her engine this boat did good service.

"SELLERY."

Patrol boat *Sellery,* in charge of Overseer Edmond Arseneau, went on duty August 20. The district patrolled was Shippegan and Miscou islands, Little river and St. Simon, and Little Pokemouche. The districts which this boat patrols are the worst in my whole division. Illegal lobster packing has been carried on in the past years, as the large coast around Shippegan and Miscou islands affords every opportunity to carry on the taking of lobsters in the close season, especially at Wilsons point, Pigeon hill, and cape Bateau. Nearly every day this boat found and destroyed lobster traps, which were set in small numbers with no evidence or marks that any existed. It was necessary to drag the coast with grappling irons in order to find them. These traps were generally set with old worn-out lines of little value. This boat went out of commission on September 23, being on patrol duty thirty days, at $8 per day. Overseer Arseneau was allowed $1.50 per day, making a total cost of $285 for this boat; a very small expenditure for the good work performed.

"GLADYS F."

The *Gladys F,* in charge of Fred. L. Hannah of Richibucto, Kent county, was engaged to patrol between point Sapin and Chockfish bay. On September 7, caught two men fishing lobsters, but could not get sufficient evidence as to who they were. On September 8 destroyed lobster traps. On October 4, 5 and 22, found traps set, and destroyed them; also on October 14, destroyed traps. This boat was engaged at the rate of $75 per month. The cost of boat, everything included, amounted to $74.66. Good work was done around this coast where in former years illegal fishing was carried on; and this small expenditure gave excellent results.

I am, sir,
Your obedient servant,

D. MORRISON,
Inspector of Fisheries.

SESSIONAL PAPER No. 39

REPORT ON WORK OF PATROL BOATS "D" AND "RICHMOND."

To the Superintendent of Fisheries,
Ottawa.

PATROL "D," CAPT. J. B. McCARTHY.

SIR,—The "D" left Tignish on May 11 and proceeded to Georgetown. She was engaged in collecting lobster spawn for the Georgetown hatchery until the end of June, when she returned to Tignish and took up patrol work between Alberton, North cape, Miminegash, and cape Wolfe for the remainder of the season. She was also employed in distributing gill-net licenses at the opening of the smelt season. On October 12 she towed into port, at Alberton, the schooner *F. A. Higgins,* which was leaking badly and had her mainsail torn. On account of stormy weather, it was impossible to patrol during November, and early in December the boat was beached at Tignish, and secured for the winter, the crew being discharged. During the season she patrolled about 2,100 miles, destroying about 1,450 traps, and seizing 27 anchors and 4,100 pounds of rope.

PATROL "RICHMOND," CAPT. P. J. CAMERON.

The boat was got afloat early in April, the ice going out of Richmond bay about the 15th, and she was on the bay at the legal time for running lobster lines. Little difficulty was experienced with regard to the running of lines; there were only a couple of cases, and the men lifted the lines. The boat remained on this part of the bay until after the expiration of the time for running. During the first days of May, large fields of ice came into the bay, and nearly all the lines that were run, were dragged out of place, and some traps destroyed. From this until the close of the lobster season, a great part of the time was devoted to visiting the lobster factories in order that no spawn or berried lobsters might be taken. Although spawn lobsters seemed to be plentiful, the fishermen seemed anxious to protect them.

The quahaug season being open at the same time as the lobster season, it was necessary to devote some time to looking after this fishery, but the price paid was small, and very few fishermen were engaged during the month of May. The oyster planters were engaged on their plants, and the *Richmond* kept watch to see that no oysters were taken from the public beds and sold to them; however, no difficulty was experienced in protecting the public oyster-beds. The lobster season closed on June 25,, and although it was a short one, a great many fish were taken in Richmond bay, and along the north side. From that date until the opening of the oyster season the boat was employed in the protection of the lobster industry and destroyed some gear at Indian river and cape Malpeque.

The oyster season opened on the public beds on October 1, and continued into December. Although the season was stormy the fishermen did fairly well, as a good price was paid. The catch at Grand river was smaller than last season, and in Richmond bay also, the catch was small, as very few were engaged in fishing there. Grand river seems to be overfished, as about two hundred fishermen were engaged in fishing there for three seasons, and owing to the dirty condition of the beds very little spat was caught during that time. Starfish are very plentiful in Richmond bay. They are now working their way into Grand river and are becoming very numerous on the deepwater beds. Although the smelt season opened on October 15, no one engaged in this industry until November, and the catch was small. No bagnets were used in Grand river, all the fishing being done with gillnets. The ice became heavy the latter part of January, and fishing was suspended, thus finishing the season's work.

I am, sir, your obedient servant,

J. A. MATHESON,
Inspector of Fisheries.

REPORT ON THE WORK OF THE "WALDREN W."

To the Superintendent of Fisheries,
Ottawa.

SIR,—I have the honour to send you herewith a statement of the movements of the patrol boat *Waldren W*, and of the work performed during the season of 1915.

On the 12th day of May, 1915, arrangements having been made by the Inspector of Fisheries, the late Commander W. Wakeham, for the hire of Mr. C. W. Tidmarsh's gasoline boat, the *Waldren W*, the only suitable boat available for patrol service, we accordingly took charge and began our patrol on the 21st day of May. We were employed in cruising between the different fishing stations on the Magdalen islands, where baiting is carried on, to prevent all illegalities by foreign fishing vessels baiting at these places. We were assisted in this work by the cruiser *Sable I*, the presence of which, especially at the beginning of the baiting, helps considerably in enforcing the fishery regulations. I firmly believe that the patrol service, such as it was this last season, is sufficiently complete to prevent offences by United States fishing vessels baiting at the Magdalens, provided that the patrol boats are ready to meet the first arrival of the fishing fleet about the 20th of April.

I beg to say that the herring catch this last season was almost a failure, owing to the ice, which remained later than usual on the south side of the Magdalen islands, interfering with the entrance of the herring school into Pleasant bay, to which they always resort on their arrival. Nearly all of the herring trap-nets, seines, etc., are located on the south side of the islands. The spring mackerel catch was one of the best we have had for years, as well as the lobster catch, which was in excess of last year; and codfish also were plentiful. Excepting the 22nd of June, when we had a heavy southeast gale, which damaged and destroyed much fishing gear, the weather throughout the season was fine and favourable for fishing; and the fall mackerel fishing was also very successful.

Regarding the pickled fish, I wish to say that the efforts of the Government, to better the quality of the fish put up by the fishermen, have been very successful here. The lectures of Mr. Cowie, last year, on this subject, at the Magdalens as well as the visits of Mr. T. Doyle, inspector, this year, who demonstrated in a practical way to the fishermen how their fish should be prepared and conditioned to give better results, have all contributed to greatly improve the quality of our pickled fish; and remarkable progress has been made by the fishermen in that direction. The returns for the mackerel shipped this year are very encouraging, and much praise is given by the buyers to the general good appearance and quality of the Magdalen island mackerel.

The baiting season over, we were afterwards employed in patrolling the different lagoons of the Magdalen islands; that is, Grand Entry, House Harbour and Havre aux Basques where fishing is prohibited throughout the year. During the time we were thus occupied we found and destroyed 141 lobster traps and seized about 485 fathoms of rope; all of which was duly reported to the Department.

There was very little poaching this year, the usual poachers finding it more advantageous to fish mackerel and codfish than to risk their traps in the lagoons, where they would be immediately found and destroyed by the *Waldren W*, which, being of light draught, can go wherever lobster traps can be set. I wish to state, also, that I am much pleased with the sea-worthiness and sailing qualties of this boat, which is very suitable for this patrol service.

Having been instructed that the services of the *Waldren W* would be dispensed with after the 31st of October, I accordingly delivered the boat to its owner and discharged our crew as directed, having ended a very successful season.

I am, sir,

Your obedient servant,

CAPT. WM. S. ARSENAULT.

SESSIONAL PAPER No. 39

SUMMARY OF THE WORK OF PATROL BOATS "LADY OF THE LAKE" AND "BRADBURY."

To the Superintendent of Fisheries,
Ottawa.

SIR,—The patrol boat *Lady of the Lake* was fitted out in April and was placed in commission on the opening of navigation. She was employed in gathering pickerel spawn on lake Winnipeg, at Big island, and in the Red river, also carrying spawn to the Gull Harbour hatchery and in bringing fry to Winnipeg. After this she was employed in placing buoys at Black river and Warren's landing. From this time until August she was used in patrolling lake Winnipeg.

The C. G. S. *Bradbury* replaced the *Lady of the Lake* on August 20. The steamer *Bradbury* was built in 1915. She is built of steel, sheathed over above the water line with rock elm. She is 160 feet long, 27 feet 6 inches wide and 13 feet in the hold. The engine, consisting of two sets of inverted, vertical, direct acting, triple expansion, jet condensing, each set having three cylinders 11 inches by 18 inches, and 30-inch stroke, are capable of developing 900 horse-power and of driving the boat 12½ knots per hour. The boilers, two in number, are of the cylindrical type, and are arranged to work under Howden's system of forced draught. The boat can be used as an ice-breaker, being capable of breaking through a foot of ice. The *Bradbury* was under orders from the undersigned, with Capt. Humphrey Bryan as master, and was used in gathering whitefish spawn until the close of navigation. She was laid up on the 20th of November, after having broken ice for several vessels.

I am, sir,
Your obedient servant,

J. A. HOWELL,
Inspector of Fisheries.

REPORT ON WORK OF PATROL BOATS IN DISTRICT No. 1, BRITISH COLUMBIA.

To the Chief Inspector of Fisheries,
New Westminster, B.C.

SIR,—I beg to submit herewith my annual report on the services performed by the patrol boats of District No. 1, for the fiscal year of 1915-16.

LAUNCH "SWAN."

This launch, under the command of Capt. T. Hembrough, has been employed during the greater part of the season patrolling the waters of the strait of Georgia and Boundary bay; also Fraser river and tributaries, including Coquitlam, Pitt, Lillooet and Sumas rivers, and Pitt and Sumas lakes, attending to general protection work. During the months from July until the latter part of November, considerable time was employed by the officer and crew of the launch in preparing for and taking spawn in the Upper Pitt river, and conveying the ova to the hatcheries at Harrison lake and Queen's Park. During the season the *Swan* logged approximately 5,786 miles.

LAUNCH "FOAM."

This launch, under the command of Capt. S. Waddell, was employed during the year in general patrol work in the district covering from Mission bridge to and

including the strait of Georgia. She also made a number of trips to Howe sound and Burrard inlet, as well as to Cowichan bay, distributing fry from Queen's Park hatchery. She travelled in all about 5,838 nautical miles, and discovered during the season 131 cases of violation of the regulations.

LAUNCH "ELK."

The launch *Elk,* commanded by Capt. W. Dauphinée, patrolled the waters of the north and south branches of the North Arm of the Fraser river, and the Sand Heads, enforcing the regulations. This officer and the engineer also assisted the crew of the *Swan* in the work on the spawning grounds on the Upper Pitt river, as well as in distributing fry. The launch travelled during the season approximately 4,500 miles, and discovered 62 cases of violation of the regulations.

The engines and machinery in this launch are in very good condition, but the hull is now quite unseaworthy, and she has about reached the limit of her usefulness. In this connection, I would recommend that a new hull be built during the coming winter months, to take the place of the old one, and the engines and machinery installed therein. This hull, as you are aware, was purchased by the Department in 1905, and the boat has been very serviceable.

LAUNCH "SEMIAHMO."

This boat, you will remember, became quite unfit for service in the Howe sound and Burrard inlet portion of the district, and she was condemned by the hull inspector and dismantled.

On August 6 last the launch *Merrysea* was purchased by the department, to be employed in patrolling this portion of the district, and under the command of Capt. M. Matheson, performed such duties until the end of October, when she was detailed for exploration work in the northern portion of the province. This launch is well suited for patrol service, and during the time she was employed in this district she did excellent work. She logged about 2,005 miles.

On November 10 the *Black Raven,* which had been in patrol service at Alert bay, District No. 3, was transferred to this district, taking the place of the *Merrysea,* under the command of patrolman Capt. A. O. Copp, who was formerly commanding officer on the chartered SS. *Thomas Crosby.* Since the date above mentioned this launch has travelled about 1000 miles and has been doing good service.

I may say that, for the protection of the fisheries in this district, it is extremely important that diligent attention be continually given to the matter of patrol, especially in the upper reaches of the Fraser river, above Mission bridge. In order that this might be done more effectively, you will remember that, on your recommendation, a new hull was constructed to receive the engines and machinery taken from the *Semiahmo.* This launch, which has been named *Semiahmo No. 2,* has been equipped for patrol service and will, during the coming season be a valuable acquisition to the fleet of boats in this district, especially for the up-river work.

For the past two years, special guardians have been placed at the vicinity of Hell's Gate and at Bridge river, for the purpose of supervising the taking of fish for food by the Indians. This policy has not only had the effect of preventing waste, but has also enabled these officers to obtain valuable data as to the quantities of fish taken by the Indians, and the numbers of the different species that ascend these streams. This policy, in my opinion, ought to be continued.

I am, sir, your obedient servant,

A. P. HALLADAY,
Assistant Inspector of Fisheries.

REPORT F. P. L. "FISPA."

F. H. Cunningham, Esq.,
Chief Inspector of Fisheries,
New Westminster, B. C.

SIR,—In handing you my report of the movements and general work accomplished by the *Fispa* during the seven months while she was in commission, I have also attached an addendum covering the work accomplished by the *Merry Sea* which was transferred to my command on November 1, 1915. It was discovered, on beaching the *Fispa* for examination early in April, 1915, that serious corrosion had taken place along her shafting between the steel shafts and center lining. I duly reported the matter to you, and ultimately received your instructions to return to New Westminster for the necessary repairs.

These repairs having been thoroughly attended to I immediately returned to the north, taking up my headquarters again at Alert bay, with the object of further exploring the rivers and lakes within that area, and at the same time prospecting for pelagic fish, which was to form a separate report later on and which together with further information has been included in my general report on exploration work. You will, therefore, observe on referring to this particular side of my exploration report that we have in reserve valuable assets, yet practically untouched commercially, existing in the waters extending from Seymour narrows north to Wright's sound.

I received your instructions on June 18, 1915, to return south and to make arrangements to thoroughly overhaul and refit the *Fispa,* and to hold her in readiness to receive the General Superintendent of Fisheries, the Chief Inspector and Provincial Commissioner, and to ultimately convey them on a cruise of inspection to the various fishing centres, extending to the north as far as the Naas river. Having completed the work necessary, I took your further instructions to proceed to Nanaimo and to be prepared to sail from that point to the north on July 2, 1915. On that date I had the honour of receiving on board the General Superintendent of Fisheries, the Chief Inspector, and Provincial Commissioner, and on the following day, July 3, we proceeded north and visited the various canneries and fishing areas, stopping at each center to allow the party to complete inspection duties. On the way north I took the opportunity, under your advice, of pointing out those parts of the coast line adjacent to the inland waters, which had a bearing upon my late reports to the General Superintendent.

We arrived at Smiths inlet, Queen Charlotte sound, on July 3, 1915. Here your party transferred to the chartered patrol boat *Crosby,* leaving me with instructions to proceed toward Gardners Canal and make a superficial survey of the rivers entering it, that was to form the basis of my reports on exploration work later on. I left Smiths inlet on July 4, and ran up Gardners canal, across to Kitimat arm, around Hawkesbury and Gribble island, down Whale channel and along the south side of Princess Royal island, when I marked each river and creek and each adjacent anchorage, so as to enable me later on to enter these more or less unsurveyed and unfrequented rivers without loss of time during the fall and winter months.

From here, on the 12th day of July, I proceeded north to Prince Rupert arriving on the following day when your party again joined the *Fispa.*

On July 14 we proceeded to the south towards Vancouver, merely touching at Alert bay for fuel and supplies, and arrived at Vancouver on the afternoon of July 17. During the time occupied by this cruise we experienced more or less perfect weather, which not only had the effect of adding to the general comfort of the cruise, but also enabled the party to get a clear outline of the geographical situation of the river estuaries, and so enabled them to follow visibly the general environment of the various fishing centres of operation and the general line or direction of the run of

salmon from the Pacific towards their ultimate spawning ground; all of which helped to make your cruise of inspection exceptionally interesting and effective. This entire cruise carried us over a line of coast for a distance of 1,120 miles.

Having made some minor repairs to the *Fispa*, under your instructions, I took up a special patrol in the gulf of Georgia down to the boundary line, and further down Puget sound. My work then came under a special report, which I handed to you in due course, and to which I have further referred in my report on exploration work with some photographic illustrations.

I abandoned this patrol on the 24th of August and, acting under your further instructions, took the *Fispa* around the west coast of Vancouver island. You entrusted me with work of a very important nature while upon this cruise.

I visited Barclay sound, Clayoquot, Ucluelet, Nootka, Esperanza, Kyuquot, Quatsino, practically every inlet on the west coast, and in addition took in all the inland channels and waterways adjacent to each main inlet, paying due regard to the geographical situations of all uncharted or unsurveyed rivers or creeks, with the ulterior object of explorative and research work on this coast at some future date. While upon the subject of this particular line of coast, I would respectfully suggest that the duties that may necessarily arise, requiring the *Fispa's* services along this dangerous line of coast, be confined to those months of the year when a craft of her size and power may navigate with comparative safety; not later than the last day of August.

Having completed my work around the west coast of Vancouver island, I returned by way of Cape Scott and came south via the east coast of the island, arriving at New Westminster on the 7th of September. When I made my report personally to you I again took up my patrol on the gulf of Georgia, and, while on that patrol, visited the river at Comox with one of the officers connected with the hatcheries and assisted him in removing about 500,000 humpback eggs, which I conveyed safely to New Westminster and which were placed in a hatchery there.

Early in October I took your instructions and ran across to Victoria, where I was joined by E. G. Taylor, Esq., inspector of fisheries for No. 3 district. We proceeded down the straits of Juan de Fuca and here visited the Jordan and San Juan rivers, where Mr. Taylor had some special work with regard to the fishery regulations, as applied to matters connected with those particular rivers.

I returned to New Westminster towards the end of October and received your instructions to dismantle and lay up the *Fispa* on the Fraser river at the government float and to have her out of commission by the 31st of October, 1915, and at the same time to make preparations for the refitting of the *Merry Sea*, having my equipments and provisions on board that boat, so as to enable me to proceed without delay to the north on exploration work along those shores lying to the north of Queen Charlotte sound.

Having completed all the necessary details attached to your instructions, the *Fispa* was placed under the care of her engineer, with written instructions to keep her engines in running order, and her hull and interior thoroughly dry during the winter months. I transferred to the *Merry Sea* on November 1, 1915, and respectfully submit a separate report covering my time in occupation up to and including March 31, 1916.

The total distance covered by the *Fispa*, while in commission from April 1, 1915, up to and including October 31, 1915, was 7,023 knots.

I am, sir, your obedient servant,

J. F. CRICHTON,
Captain.

REPORT "MERRY SEA."

(November 1, 1915, to March 31, 1916.)

F. H. Cunningham, Esq.,
New Westminster, B.C.

Sir,—In July last, under your recommendation, the General Superintendent of Fisheries, on behalf of the Fishery Department, purchased the *Merry Sea*. At the time of purchase the General Superintendent and you asked if she was, in my opinion, suitable for the exploration work, for which I understood she was intended and, as far as I could then ascertain superficially, I expressed myself as being in every way perfectly satisfied with her.

I have only to add now, after a severe trial of five months in northern waters, that I have found her in every respect a most efficient boat for this particular work. I took her over on November 1, 1915, and after some preliminary and minor refit left New Westminster on the 3rd instant and proceeded north towards Princess Royal island, District No. 2.

Under your instructions I was to explore and report upon the various rivers and lakes that lie within the environment of Princess Royal island, Gardners canal, Kitimat arm, Douglas channel, Boxer, Ursula, Graham, and Fraser reaches and Whale channel. I therefore made Butedale, Princess Royal island, my winter headquarters, choosing it as being geographically within reach of the area upon which I had to work.

I worked the rivers upon Gardners canal during December, starting first at the Kitlap river, at the head, and so working later on the rivers at Kermand, Kerisas, Ochive, Bruin, and Crab bays.

Having completed my work here I took the upper end of Kitimat arm towards the north, working either side in turn, but found the weather becoming impossible, owing to exceptionally hard frost and snow. I, after superficially surveying these waters, abandoned them and moved further south toward Kit-Kia-Ta, Douglas Channel. I worked the rivers at the latter place, also Jessie lake and falls, as well as the rivers on Hawkesbury island and those that ran into Douglas channel from the mainland. By the time I had finished my work it was well towards the end of January.

I devoted the remainder of my time to the rivers and lakes within the environment of Princess Royal island, Boxer, Ursula, Fraser and Graham reaches.

It is not necessary in this report to refer in any detail to the subject matter regarding my exploration work, as this subject is freely dealt with in my illustrated reports with which you have been furnished.

During practically the whole winter we experienced exceptionally hard weather, with snow and frost, more or less continually, which had the effect of seriously restricting work of this particular nature. Nevertheless, I was enabled to reach many places that would have been impossible had I been handicapped with a boat of larger dimensions and a large crew, that would necessarily require provisioning constantly.

Toward the end of March I left No. 2 district, and gradually made my way south, towards Alert bay, on my way covering some work in Ellerslie channel and Deer passage, within the Bella-Bella district; and so eventually arrived at Alert bay, where I made my headquarters pending my return south. I was thus enabled to do some further important work within that area, during the remainder of my stay in the north.

The total distance covered from November 3, 1915, to March 31, 1916, was 2,460 knots.

I cannot suggest any further alterations or additions to the *Merry Sea* with the exception of some minor details regarding the engine department. The engineer, Mr.

Huson, however, has so skilfully altered and adjusted the engines, as to have the effect of enormously reducing the amount of fuel, and at the same time giving increased speed with a markedly reduced strain upon the engines.

Mr. Huson suggests that new driving gear for the magneto be installed, and also another magneto or an additional set of batteries be added, as a danger constantly exists of the original set being exhausted for lighting purposes and so jeopardizing the remaining of sufficient current for the starting up of the main engines.

In closing my report I again take the opportunity of expressing approval of the manner in which my crew assisted me by cheerfully accepting circumstances, often of an extremely trying nature, necessarily arising from the privation and isolation connected with work of this character.

I have the honour to remain,
Yours respectfully,

J. F. CRICHTON.

REPORT ON WORK OF PATROL BOATS IN DISTRICT NO. 2, BRITISH COLUMBIA.

To the Chief Inspector of Fisheries,
New Westminster, B. C.

SIR,—I have the honour to submit my annual report in connection with the services performed by the fishery patrol boats under my control during the fiscal year ended March 31, 1916.

STEAMER "THOMAS CROSBY," CAPT. A. O. COPP.

Owing to the *Falcon* having been condemned and sold by the Department of the Naval Service, the fishery branch chartered the steamer *Thomas Crosby,* to take her place in No. 2 district, for the supervision of the fisheries, also for patrolling purposes. She is an able vessel of the size of the *Falcon* and exactly suitable for the work. This vessel was chartered on the 27th day of May until October 8, 1915. During that time she travelled some 4,300 statute miles, making about 160 official calls. During the season the vessel was placed at the disposal of officials, and in July met the superintendent of fisheries from Ottawa, the chief inspector of fisheries and the deputy commissioner of fisheries from Victoria, at Smith's inlet, taking them for a visit of inspection all over the district; which visit terminated at Prince Rupert, where they were met by the F. P. L. *Fispa.*

Many seizures were made during the season, and prosecutions and convictions followed.

F. P. L. "GANNET," PATROLMAN CAPT. J. HAAN.

From the beginning of the fiscal year up to April 21 the *Gannet* was employed in the vicinity of Prince Rupert, patrolling the herring spawning grounds, and in taking fishery officers to points where the performance of their duties required them to go.

From April 21 until June 11, the *Gannet* was employed around the Queen Charlotte islands, doing patrol service in that locality. From June 11 until October 1 the vessel was principally employed in the Naas district, in connection with the salmon fisheries, making one or two short trips to the Queen Charlotte islands, on account of some illegal fishing reported in the vicinity of Langara island.

The launch was also sent to the assistance of some Japanese who were wrecked on the northwest end of Graham island.

From October 1 to January 15 the *Gannet* was laid up at Aliford bay, Q.C.I., then the launch was placed in commission and proceeded to Prince Rupert to patrol and protect the herring fisheries in that vicinity. The *Gannet* covered about ten thousand miles during the time she was in commission, and I am pleased to report that very little illegal fishing occurred.

F. P. L. "BONILA," PATROLMAN AND OVERSEER, CAPT. JAMES BOYD.

The F. P. L. *Bonila* went into commission on the 1st of March, 1915, and during that month was overhauled and painted for the season's work.

During the months of April and May, she patrolled the off-shore waters frequented by the fur seals on their way to the breeding grounds, but no boats were seen hunting fur seals during those two months.

From June to October the launch was engaged patrolling between Addenbrooke island in Fitz Hugh sound and Banks island in Hecate Straits, and all channels and inlets contained in this area of water, except Burke and Dean channels.

The *Bonila* travelled during the season about 10,000 miles, and during that time observed no infringement of the fishery regulations.

The vessel gave perfect satisfaction, the engines running well, consequently she was able to cover the large area of water comprising the central division of district No. 2.

F. P. L. "KAYEX," PATROLMAN T. S. HANSEN.

The above vessel has rendered good service this season, and has been on steady patrol work since the beginning of May till the end of October, six months.

During that period, she has covered a distance of approximately 6,035 miles on 2,350 gallons of distillate.

The engine has worked splendidly and has been well cared for.

She was laid up for the winter at the Marine depot, in Prince Rupert.

F. P. L. "HAWK," PATROLMAN T. DAWE.

This launch was in commission for seven months, and has rendered excellent service again this season on the Skeena river.

Her engine has given good satisfaction, and has had every care and attention.

She has covered approximately 5,088 miles since commencing her patrol duties.

F. P. L. "MERLIN," PATROLMAN AND OVERSEER G. SAUGSTAD.

The *Merlin* was launched on the 15th of April and put in commission, and during that month she ran about 125 miles.

During the month of May she made a few calls at the various canneries on Rivers inlet, travelling about sixty miles.

During the month of June she ran only about 112 miles as the engine went out of commission on the 25th of this month and it was not running again until the 10th of July. She was engaged mainly in calls at the different canneries.

The remainder of July she ran about 781 miles, on patrol, with a few calls at canneries. During this month 55 cases of salmon taken in illegal fishing during the weekly close season, were seized.

In the month of August, in patrol work and other business connected with the fisheries, she ran about 599 miles, including one trip to Takush harbour.

During the month of September the distance travelled was about 820 miles, including one trip to Smiths inlet, and one trip to Namu, with the run to Bella-Coola, which leaves the distance run in Rivers Inlet waters about 540 miles.

The total distance run by the launch *Merlin* during the season of 1915 was 2,497 miles.

F. P. L. "LINNET" PATROLMAN AND OVERSEER, W. T. ADAMSON.

This launch patrols the waters of the lower Naas and Portland inlet. She was in commission from April 1 to September 30, and during that time travelled some 3,700 miles.

During August engine trouble developed, and after repeated endeavours to repair same, it was found necessary to tie her up, and engage the launch *Evelyn B* for one month. The latter travelled about 350 miles.

The *Linnet* has been in commission for eight years, and the engine is now practically useless. The department is installing another in its place for the coming season.

The fisheries regulations were well observed, only five or six cases of illegal fishing occurring during the season.

F. P. L. "KINGFISHER," PATROLMAN AND OVERSEER, JOHN WIDSTEN.

During the season 1915 the launch *Kingfisher* was engaged in patrolling Burke and Dean channels, Cascade Inlet, and South Bentic arm, which include the Bella-Coola and Kimsquit fisheries.

This launch travelled about 2,025 miles during the season. She was in commission 5 months, and has done the work satisfactorily.

The close season in these waters was well observed.

I am, sir,
Your obedient servant.

JOHN T. C. WILLIAMS,
Inspector of Fisheries.

REPORT ON WORK OF PATROL BOATS IN DISTRICT No. 3, BRITISH COLUMBIA.

To the Chief Inspector of Fisheries,
New Westminster, B. C.

SIR,—I have the honour to submit reports of the services performed by the various fisheries patrol boats in my district during the fiscal year ended March 31, 1916:—

LAUNCH "HERON."

The waters patrolled by the launch *Heron* include Clayoquot and Nootka sounds, and Esperanza inlet, on the west coast of Vancouver island. Early in June this launch was taken out of the water and thoroughly overhauled, her hull copper-painted, and her cabin, decks and other parts cleaned and painted. She was engaged in patrol service until October 1, and during that time logged about 1,900 miles.

Mr. Grice, the fishery officer in charge, reports that the fishery regulations were well observed. In a few cases it was necessary to caution the Indians with regard to obstructing streams. It is a very important part of the overseer's duties to see that free access is given the salmon to reach their spawning areas.

The *Heron* is also used in enforcing the regulations covering the hunting of fur seals by the Indians.

LAUNCH "EGRET."

After her annual overhaul, the *Egret* went into commission on May 15, and continued in the service until October 1. During these months she logged 2,000 miles, patrolling the waters between port San Juan and Wreck bay, including Alberni canal and Barclay sound, west coast Vancouver island.

LAUNCH "GULL."

The wafers patrolled by this launch extend from Big Qualicum to Maple bay on the east coast of Vancouver island. She was in commission during nine months of the season, and logged during that time about 8,000 miles. Mr. Harry McIndoo, officer in charge of the *Gull,* reports that the fishery regulations were well observed. Only three prosecutions for illegal fishing were made.

LAUNCH "COHOE."

Mr. A. Newland, fishery officer in charge of the *Cohoe,* reports that over 8,000 miles were travelled by this boat during the past year, visiting every part of his district. The area patrolled extends from Bute inlet to Sechelt on the mainland coast. More breaches of the fishery regulations were reported than in former years, but this was owing to the fact that a very much larger number of fishermen, especially Japanese, were engaged in fishing operations in this district during the past season. The infractions of the regulations were promptly and energetically dealt with.

LAUNCH "RAVEN."

This launch, with headquarters at Alert bay, patrolled the mainland coast from cape Caution to the head of Knight inlet, and on the east coast of Vancouver island from cape Scott to Adams river. The boat was in commission for about five months during the past season, and logged about 3,000 miles. Mr. Lucas, officer in charge of the *Raven,* conveyed Mr. Broder, inspector of canneries, to the different canneries in his district.

C. G. S. ALCEDO.

The *Alcedo,* during the past season, performed her usual patrol service, and logged about 8,000 miles. Capt. Laird of the *Alcedo,* reports six cases of illegal fishing dealt with during this period. The area patrolled extends from Esquimalt to Queen Charlotte sound, the waters lying principally between Vancouver island and the mainland. The *Alcedo* is of great importance to me in the inspection work which is found necessary in this large territory.

As instructed by the Department I placed the *Alcedo* at the service of the Post Office Department, and Mr. Haynes, assistant inspector of post offices, inspected the various outlying post offices in my district. He made twenty-seven calls and travelled about five hundred miles during his tour of inspection.

I am, sir, your obedient servant,

EDWARD G. TAYLOR,
Inspector of Fisheries.

APPENDIX 15.

EXPENDITURE AND REVENUE.

The total expenditure for all fisheries services, except civil government for the fiscal year ended March 31, 1916, amounted to $956,562.24.

The total net fisheries revenue from rents, fines, sales and license fees (including *modus vivendi* licenses to United States vessels) for the same period amounted to $106,288.26.

The following is a summary of the sums appropriated and those expended for the various services during 1915--16 :

FISHERIES EXPENDITURE, 1915--16.

Service.	Appropriation.	Expenditure.
	$	$ cts.
Salaries and disbursements of fishery officers	305,000 00	247,539 56
Building fishways and clearing rivers	30,000 00	5,205 55
Legal and incidental expenses	4,000 00	1,138 98
Canadian Fisheries Museum	8,000 00	6,646 80
Oyster culture	6,000 00	4,470 95
Cold Storage and Transportation of Fish	150,000 00	89,459 10
Dogfish Reduction Works	60,000 00	32,137 86
Services of customs officers *re* modus vivendi licenses	900 00	439 65
Fisheries Intelligence Bureau	5,000 00	4,618 64
Fisheries Patrol Service	190,000 00	153,933 97
Exhibit of fresh and cured fish (Toronto Exhibition)	15,000 00	10,928 97
Fish breeding establishments	400,000 00	275,079 38
Inspection of canned and pickled fish	25,000 00	12,327 75
Building Fisheries Patrol Boat	32,000 00	21,423 10
Fisheries patrol steamer for Lake Winnipeg	100,000 00	49,212 81
Removal of obstructions, Fraser River	30,000 00	7,007 83
Investigation of Hudson Bay Fisheries	10,000 00	442 17
Compensation to Captain Peter Carlson	4,500 00	4,500 00
Marine Biological Stations and Investigation	26,000 00	26,000 00
Expenses investigating claims for compensation under Pelagic Sealing Treaty	4,100 00	4,049 15
Totals	1,405,500 00	956,562 24
Fishing Bounty	160,000 00	158,678 85

The following summaries show the salaries and disbursements of the fishery officers in the several provinces, the expense for maintenance of fish-breeding establishments throughout Canada, also the expense of the Fisheries Patrol Service.

Details will be found in the Auditor General's Report under the proper headings.

SALARIES and Disbursements of Fisheries Officers, 1915-16.

Provinces.	Officers.		Guardians.		Miscellaneous.	Total.
	Salaries.	Disbursements.	Wages.	Expenses.		
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia	19,118 52	16,550 08	22,935 17	196 67	78 93	58,879 37
Prince Edward Island	3,059 13	2,312 72	3,002 13	41 56	388 73	8,804 27
New Brunswick	10,817 50	9,529 63	28,641 33	5,788 48	218 47	54,995 41
Quebec	3,276 80	3,353 04	6 25		20 03	6,656 12
Ontario	1,100 00	9 00				1,109 00
Manitoba	6,442 40	997 03	3,762 69	1,814 95	59 65	13,076 72
Saskatchewan	7,361 55	3,334 41	2,969 50	2,552 23	484 02	16,701 71
Alberta	3,999 92	1,044 89	6,554 50	2,702 92	265 50	14,567 73
British Columbia	38,825 55	7,064 32	6,781 29	734 48	2,754 47	56,160 11
Yukon Territory	1,425 00	269 75	100 00			1,794 75
General Account	845 00	546 05			13,403 34	14,794 39
Total	96,271 37	45,010 92	74,752 86	13,831 29	17,673 14	247,539 58

Fish Breeding—1915-16.

Hatcheries.	Salaries.	Maintenance.	Total Expenditure of Hatcheries.	Total Expenditure of Provinces.
	$ cts.	$ cts.	$ cts.	$ cts.
General Account	2,548 97	3,825 28		6,374 25
Nova Scotia.				
Antigonish	997 35	960 75	1,958 10	
Arichat	1,236 17	1,004 24	2,240 41	
Bay View	1,348 92	1,353 95	2,702 87	
Bedford	2,255 00	736 61	2,991 61	
Canso	1,586 39	1,688 25	3,274 64	
Inverness	1,326 09	2,333 10	3,659 19	
Isaac's Harbour	1,318 76	1,431 73	2,750 49	
Lindloff	50 00	319 25	369 25	
Little Bras d'Or	1,240 00	1,435 90	2,675 90	
Long Beach Pond	282 50	1,146 76	1,429 26	
Margaree	2,097 25	1,039 20	3,136 45	
Margaree Pond	490 49	1,185 64	1,676 13	
Middleton	2,013 00	1,805 88	3,818 88	
Windsor	1,528 98	701 85	2,230 83	
				34,914 01
Prince Edward Island.				
Charlottetown	956 00	2,037 87	2,993 87	
Kelly's Pond	1,758 50	2,852 23	4,610 73	
Georgetown	1,204 63	829 38	2,034 01	
				9,638 61
New Brunswick.				
Buctouche	1,217 00	1,459 71	2,676 71	
Grand Falls	1,447 99	942 13	2,390 12	
Miramichi	2,373 42	5,649 04	8,022 46	
New Mills Pond	1,016 75	2,922 82	3,939 57	
Nipisiguit	282 17	77 68	359 85	
Restigouche	2,209 87	1,916 44	4,126 31	
St. John	2,349 50	3,857 73	6,207 23	
St. John Pond	1,171 47	2,390 91	3,562 38	
Shad	83 00	687 39	770 39	
Shemogue	1,134 87	1,767 90	2,902 77	
Shippegan	1,441 17	1,361 90	2,803 07	
Sparkle	258 62	295 30	553 92	
Tobique	73 64	227 00	300 64	
St. John Trout Pond		2,261 00	2,261 00	
				40,876 42
Quebec.				
Dartmouth River		359 54	359 54	
Gaspé	1,012 23	2,155 83	3,768 06	
House Harbour	1,366 75	1,260 96	2,627 71	
Lake Lester	604 10	681 67	1,285 77	
Lac Tremblant	250 00	162 87	412 87	
Magog	585 15	169 57	754 72	
Pt. Daniel	960 27	1,272 79	2,233 06	
St. Alexis	262 75	362 28	625 03	
Tadousac	3,035 84	2,221 02	5,226 86	
				17,323 62
Ontario.				
Collingwood	3,126 99	5,742 05	8,869 04	
Kenora	3,768 01	3,821 85	7,589 86	
Port Arthur	1,308 61	6,761 51	8,070 12	
Sandwich	3,875 61	7,143 23	11,018 84	
Sarnia	3,552 17	2,686 19	6,238 36	
Southampton	2,718 10	1,312 89	4,030 99	
Thurlow	3,802 41	8,638 09	12,440 50	
Wiarton	2,555 84	2,899 18	5,455 02	
				63,712 73

Fish Breeding—1915-16—*Concluded.*

Hatcheries.	Salaries.	Maintenance.	Total Expenditure of Hatcheries.	Total Expenditure of Provinces.
Manitoba.	$ cts.	$ cts.	$ cts.	$ cts.
Dauphin River	3,121 99	2,234 35	5,356 34	
" Spawn Camp	967 50	1,102 32	2,069 82	
Gull Harbour	3,050 30	2,578 04	5,628 34	
Selkirk	3,153 36	2,929 89	6,083 25	
Winnipegosis	3,656 84	3,859 77	7,516 61	
				26,654 36
Saskatchewan.				
Qu'Appelle	2,581 52	2,133 20	4,714 72	4,714 72
Alberta.				
Banff	2,683 40	1,837 48	4,520 88	
Permiz Creek		277 81	277 81	
				4,798 69
British Columbia.				
Anderson Lake	2,942 75	1,718 57	4,661 32	
Babine	3,510 59	2,931 34	6,431 93	
Cowichan	3,599 20	1,457 44	5,056 64	
Fraser River	180 00	152 75	332 75	
Gerrard	2,880 27	1,432 08	4,312 35	
Granite Creek	1,300 96	237 02	1,537 98	
Harrison	6,221 91	3,777 03	9,998 94	
Kennedy	3,533 61	3,270 98	6,804 59	
New Westminster	1,036 67	1,095 03	2,131 70	
Pemberton	4,333 76	2,455 33	6,789 09	
Rivers Inlet	4,074 84	2,551 36	6,626 20	
Skeena River	3,848 56	2,525 21	6,373 77	
Stuart Lake	3,098 66	1,916 05	5,014 71	
				66,071 97
Total expenditure				275,079 38

Fisheries Revenue for Fiscal Year ended March 31, 1916.

Provinces.	Amount Collected.	Refunds.	Net Amount.
	$ cts.	$ cts.	$ cts.
Ontario	2,600 65		2,600 65
Quebec	7,006 89		7,006 89
New Brunswick	15,098 80	1 00	15,097 80
Nova Scotia	7,109 18	140 00	6,969 18
Prince Edward Island	3,165 35		3,165 35
Manitoba	5,926 00		5,926 00
Saskatchewan	3,215 00	20 00	3,195 00
Alberta	5,237 85		5,237 85
British Columbia	46,872 54	10 00	46,862 54
Yukon	315 00		315 00
Totals	96,547 26	171 00	96,376 26
Modus vivendi licenses	9,912 50	50	9,912 00
Grand total			106,288 26

Fisheries Patrol Service.

Expenditure Fiscal Year 1915-16.

Name of Vessels.	Total.	Pay Lists.	Board or Provisions	Fuel.	Repairs.		Supplies.		Clothing.	Sundry.
					Hull.	Engine.	Engine.	Deck.		
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
General Account	5,379 17	1,660 49	....	1,224 35	5 89	43 49	65 62	175 96	4 51	2,198 86
Alcedo	10,490 05	5,091 95	2,045 60	883 81	1,455 75	355 92	143 15	314 39	148 48	51 00
Bonila	1,747 13	1,085 00	.....	462 27	13 50	20 10	... .	25 56	....	140 70
Bradbury	7,182 85	4,003 97	790 51	959 48	481 61	15 70	531 36	225 72	....	174 50
Cohoe	1,803 41	1,020 00	.....	372 94	24 30	90 36	59 61	204 00	....	31 60
Egret	787 65	420 00	....	171 39	....	4 95	63 39	113 60	.....	14 32
Elk	2,137 09	2,040 00	... .	.....	29 50	28 85	8 85	17 54	....	12 35
Falcon	33 00	....	32 00	.....	.....	.....	.....	.....	.....	1 00
Fispa	10,228 46	5,064 02	1,176 80	1,920 31	532 50	357 93	118 87	494 59	224 13	339 31
Foam	3,612 84	3,375 17	....	.....	88 40	102 04	4 73	39 15	.....	3 35
Gannet	2,131 09	1,543 53	.....	281 52	....	39 73	52 64	55 34	.....	158 33
Gull	2,097 05	1,440 00	....	544 85	.....	39 15	28 83	38 22	.. ..	6 00
Hawk	1,627 89	1,452 00	....	100 00	.....	2 60	12 99	2 25	.....	58 05
Heron	809 78	465 00	.....	199 80	33 00	11 70	28 50	71 78	... .	.....
Hudson	4,007 09	2,469 89	.....	746 43	273 52	165 26	147 99	80 60	.....	123 40
Kayex	1,755 17	1,120 00	....	410 51	.....	.....	48 03	22 45	.....	154 18
Kingfisher	400 32	400 32	.....	.....	.....	.....	.....	.....	.....	.....
Lady of the Lake	5,590 69	2,567 11	810 55	1,738 24	40 12	8 70	73 81	54 07	.. ..	298 09
Linnet	715 12	510 00	.....	173 70	....	17 00	.....	4 37	....	10 05
Merry-Sea	4,204 00	2,288 00	760 00	506 81	... .	22 53	87 51	371 57	47 20	120 38
Merlin	621 64	564 84	....	56 80	.....	.....	.....	.....	.....	.....
Nelson	4,973 85	2,491 60	.....	347 08	139 90	1,449 99	11 87	307 86	147 06	78 49
Patrol Boat A	3,560 40	2,082 43	80 63	419 76	40 75	304 70	244 55	250 25	108 38	28 95
" B	3,064 81	2,090 86	97 27	364 40	40 12	33 23	195 95	119 73	105 37	17 88
" C	3,741 58	2,120 96	3 37	319 26	116 25	598 03	58 18	436 64	84 84	4 05
" D	3,382 64	2,289 72	.....	345 04	98 66	193 15	144 19	121 92	82 27	107 69
" E	3,724 27	2,151 00	.....	547 40	109 66	182 83	139 86	104 03	76 03	413 46
" F	3,273 87	1,765 23	27 57	209 68	167 10	159 45	34 15	419 83	218 77	272 09
" G	3,394 57	2,030 56	46 36	562 68	70 41	25 61	51 33	287 76	99 91	219 95
Phalarope	5,354 59	3,000 00	.....	1,382 99	25 59	77 69	259 60	478 40	102 31	28 01
Princess	28,901 85	11,450 78	3,528 00	5,408 85	1,583 88	2,544 58	844 95	1,454 71	1,043 39	1,042 71
Raven	2,462 75	1,579 77	....	370 48	48 00	74 60	140 54	159 26	.. ..	90 10
Richmond	1,336 57	875 00	....	239 92	.. ..	.....	85 03	107 12	.....	29 50
Seagull	1,292 88	1,097 00	....	77 01	16 73	7 25	31 18	28 67	13 04	22 00

Search	1,414 89	778 06	.....	289 50	.....	.....	20 10	.....	.....	327 23
Semiahmo	1,757 58	932 50	.....	45 06	508 95	.....	22 22	5 35	.....	243 50
Swan	3,508 52	3,180 00	.....	.....	41 35	122 95	9 90	71 92	.....	82 40
St. Mary's	2,039 06	429 68	.....	277 90	.....	.....	20 91	2 07	.....	1,309 10
Tanner	143 70	133 50	.....	.....	.....	.....	.....	.....	.....	10 20
Thomas Crosby	6,395 75	2,056 04	850 65	679 73	60 00	.....	45 68	61 97	207 64	2,434 04
Waldren W	2,847 75	1,146 20	.....	.....	33 55	.....	.....	.....	.....	1,668 00
Totals	153,933 97	82,262 18	10,249 31	22,639 95	6,078 99	7,100 07	3,836 07	6,729 25	2,713 33	12,324 82

Comparative Statement of Expenditure and Revenue of

Number.		1895–96.		1896–97.		1897–98.	
		Expenditure.	Revenue.	Expenditure.	Revenue.	Expenditure.	Revenue.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1	General Account Fisheries			2,198 47		2,389 66	
2	Nova Scotia	23,049 41	6,180 93	23,682 33	5,239 55	21,683 91	5,317 08
3	New Brunswick	20,526 56	10,696 88	21,671 92	10,110 77	17,063 58	11,511 85
4	Prince Edward Island	3,555 87	2,161 85	3,744 36	2,032 25	6,775 78	2,707 57
5	Quebec	11,870 43	8,160 98	12,910 80	7,876 12	11,140 16	7,571 15
6	Ontario	24,917 48	35,681 68	21,592 40	32,814 66	19,239 34	30,574 57
7	Manitoba	3,852 18	1,670 19	1,908 14	1,719 00	1,206 26	1,515 00
8	N. W. Territory	2,963 02	586 50	3,181 58	344 13	2,324 66	393 87
9	British Columbia	6,226 77	26,410 75	8,841 64	39,888 82	8,508 79	47,864 75
10	Yukon						
11	Fish Breeding	38,050 41		27,330 73		28,002 32	
12	Fisheries Protection Service.	102,021 72		99,357 41		97,170 05	
13	Miscellaneous	20,103 25	7,351 50	62,777 30	7,585 15	59,626 90	6,923 91
	Totals	257,137 10		289,197 08		275,131 41	
	Fishing bounties	163,567 99		154,389 77		157,504 00	
	Grand totals	420,705 09	[1]98,901 26	443,586 85	[2]107,610 45	432,635 41	[3]114,379 75

Number.		1902–03.		1903–04.		1904–05.	
		Expenditure.	Revenue.	Expenditure.	Revenue.	Expenditure.	Revenue.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
14	General Account Fisheries	402 97		1,362 11		1,314 75	
15	Nova Scotia	39,118 79	3,962 45	30,003 01	3,685 75	32,619 85	6,448 88
16	New Brunswick	27,132 84	11,188 02	27,664 34	10,593 20	25,253 16	11,887 19
17	Prince Edward Island	7,081 60	2,007 35	7,320 96	1,983 42	6,879 05	2,046 50
18	Quebec	6,785 86	4,379 15	7,619 67	4,670 64	6,769 16	4,648 86
19	Ontario	4,660 53	1,818 83	4,500 43	2,578 48	4,294 60	1,471 51
20	Manitoba	3,129 70	1,784 00	2,789 74	4,002 70	2,800 64	4,875 70
21	N. W. Territory	7,076 26	1,350 50	7,317 49	922 50	7,003 55	1,151 50
22	Saskatchewan						
23	Alberta						
24	British Columbia	17,808 45	43,015 62	15,133 65	56,904 34	16,631 37	47,436 00
25	Yukon	1,522 00	320 00	1,400 00	240 00	1,400 00	340 00
26	Hudson Bay				10 00		10 00
27	Fish Breeding	77,330 86		109,286 07		149,419 24	
28	Fisheries Protection Service	145,137 99		204,654 66		462,082 12	
29	Miscellaneous	30,903 27	8,925 40	56,828 18	10,165 50	105,892 97	10,672 00
	Totals	368,091 12		475,880 31		822,360 46	
	Fishing bounties	159,853 50		158,943 70		157,228 24	
	Grand totals	527,944 62	[4] 78,751 32	634,824 01	95,756 53	979,588 70	90,988 14

Number.		1909–10.		1910–11.		1911–12.	
		Expenditure.	Revenue.	Expenditure.	Revenue.	Expenditure.	Revenue.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
30	General Account Fisheries	3,910 03		4,540 84		9,392 19	
31	Nova Scotia	46,590 66	3,821 81	45,800 42	7,749 60	49,540 37	5,912 65
32	New Brunswick	41,188 19	13,044 88	41,593 46	12,996 84	42,708 01	13,902 15
33	Prince Edward Island	9,396 08	2,359 93	9,415 09	2,499 63	9,116 56	2,477 50
34	Quebec	7,886 85	4,947 46	7,695 49	5,336 61	10,558 70	6,044 75
35	Ontario	4,836 86	1,520 75	7,125 37	280 25	20,255 96	658 45
36	Manitoba	5,223 82	3,962 88	7,163 36	8,137 75	7,152 24	6,334 00
37	†Saskatchewan	6,474 57	1,209 44	7,597 87	1,246 00	8,587 31	1,304 75
38	Alberta	7,938 22	703 00	7,867 27	698 50	8,537 07	709 00
39	British Columbia	37,509 61	41,864 80	40,314 16	45,846 70	37,028 05	44,898 51
40	Yukon	2,316 63	457 00	1,964 95	907 50	2,094 75	203 25
41	Hudson Bay		301 83		100 00		
42	Fish Breeding	180,345 65		220,727 66		235,699 52	
43	*Fisheries Protection Service.	295,443 47				92,666 65	
44	Miscellaneous	345,294 58	10,876 78	199,762 00	15,076 50	150,519 90	13,785 00
	Totals	994,355 22		601,567 94		683,857 28	
	Fishing bounties	155,221 85		159,166 75		159,999 70	
	Grand Totals	1,149,577 07	85,070 56	760,734 69	100,875 88	843,856 98	96,230 01

[1] Including refund of $2,727.10. [2] Including refund of $1,140.90. [3] Including refund of $1 276.25. [4] Including refund of $115 .50. * The Fisheries Protection Service being now under the control of the Naval Department, this expenditure,

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the Fisheries Department, July 1, 1895, to March 31, 1916.

1898–99.		1899–1900.		1900–01.		1901–02.		Number.
Expenditure.	Revenue.	Expenditure.	Revenue.	Expenditure.	Revenue.	Expenditure.	Revenue.	
$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
2,632 12	.....	652 41	.....	1,117 49	.....	765 78	.....	1
25,348 11	4,668 22	27,461 91	5,494 49	35,730 69	6,595 94	32,618 00	6,084 65	2
22,922 50	10,430 08	21,459 94	12,015 27	28,452 51	10,150 40	23,813 62	11,658 34	3
6,832 85	2,242 24	7,364 20	2,207 12	7,934 03	1,525 30	7,814 02	1,843 45	4
11,350 27	6,287 71	5,549 04	2,543 04	6,652 96	4,738 92	6,242 58	2,498 85	5
11,784 22	5,830 85	3,604 94	794 12	3,819 57	717 35	4,445 93	373 42	6
1,883 37	1,537 85	1,723 59	2,028 00	2,669 74	1,103 00	2,624 87	2,279 00	7
4,665 68	150 50	3,763 23	1,522 50	6,351 39	816 55	5,928 22	950 07	8
8,459 47	45,801 75	13,662 17	53,195 35	17,866 36	52,960 35	18,560 73	41,178 65	9
.....	.....	.....	.....	1,159 81	406 00	2,066 66	1,130 00	10
34,522 57	.....	38,070 12	.....	68,961 40	.....	79,891 85	.....	11
105,133 27	.....	97,370 11	.....	124,211 21	.....	152,825 07	.....	12
23,207 73	9,062 75	31,125 67	8,617 60	27,833 79	9,178 50	56,131 26	11,223 65	13
258,142 16	.....	251,807 33	.....	332,760 95	.....	393,728 59	.....	
159,459 00	.....	160,000 00	.....	158,802 50	.....	155,942 00	.....	
417,601 16	[4]86,011 95	411,807 33	[5]88,417 49	491,563 45	[6]88,192 31	549,670 59	779,220 08	

1905–06.		1906–07.		1907–08.		1908–09.		
2,261 66	.....	1,437 28	.....	3,135 91	.....	4,751 36	.....	...
49,351 10	4,934 43	24,989 09	3,118 73	45,241 50	4,470 45	44,601 04	5,369 70	15
35,856 38	11,395 84	24,987 70	9,153 08	36,445 88	11,541 20	38,904 12	12,385 14	16
9,351 81	2,206 25	5,792 32	1,300 94	9,455 80	3,013 85	8,410 25	2,393 66	17
8,123 04	7,564 39	5,590 94	8,145 97	8,200 02	6,185 63	7,895 53	6,797 91	18
4,949 67	499 15	3,188 34	349 10	4,857 23	458 00	4,784 23	770 78	19
3,687 07	4,148 00	2,173 33	2,285 98	4,638 51	3,527 05	3,945 73	3,704 22	20
11,124 22	868 97	.....	458 00	.....	598 15	.....	.....	21
.....	.....	3,681 45	509 00	7,277 49	948 60	6,591 20	1,085 50	22
.....	.....	2,677 77	2 50	5,440 66	2 50	5,713 80	915 00	23
30,141 33	51,532 50	20,381 97	29,903 95	31,954 83	48,737 55	35,139 58	39,251 65	24
1,083 31	282 00	1,030 35	173 00	1,226 30	274 00	1,019 50	228 00	25
.....	10 00	.....	10 00	.....	360 00	.....	20 00	26
209,279 78	.....	118,681 62	.....	235,660 26	.....	190,563 19	.....	27
249,876 37	.....	204,837 82	.....	225,279 96	.....	242,601 14	.....	28
194,993 61	14,568 16	115,219 92	4,134 00	181,267 38	10,569 50	196,808 02	9,794 00	29
810,079 35	.....	534,669 90	.....	800,081 75	.....	791,728 69	.....	
158,546 65	.....	159,015 75	.....	156,114 50	.....	159,999 90	.....	
968,626 00	98,009 69	693,685 65	59,544 25	956,196 25	90,686 48	951,728 59	82,715 56	

1912–13.		1913–14.		1914–15.		1915–16.		
11,563 48	.....	11,549 63	.....	18,883 18	.....	14,794 39	.....	30
45,828 11	6,730 00	54,919 95	7,682 50	61,796 86	7,415 80	58,879 37	6,969 18	31
45,136 31	15,192 52	50,210 68	17,083 40	59,759 66	14,263 99	54,995 41	15,097 80	32
8,890 15	2,927 96	8,830 24	2,245 60	9,808 31	2,046 50	8,804 27	3,165 35	33
9,784 38	8,095 79	10,086 98	5,286 89	11,006 02	7,639 75	6,656 12	7,006 89	34
4,332 25	548 74	3,932 55	806 69	4,647 40	918 80	1,109 00	2,600 65	35
6,862 15	6,039 00	11,075 76	4,846 50	14,612 07	8,312 08	13,076 72	5,926 00	36
17,413 00	4,268 50	24,931 14	8,253 05	34,100 25	10,432 15	16,701 71	3,195 00	37
.....	.....	.....	.....	.....	.....	14,567 73	5,237 85	38
45,826 40	48,824 50	52,390 23	52,835 50	59,778 16	41,423 95	56,160 11	46,862 54	39
1,909 83	342 00	1,520 00	226 00	2,158 80	304 00	1,794 75	315 00	40
.....	.....	.....	.....	.....	.....	.....	.....	41
283,793 43	.....	354,675 13	.....	370,093 17	.....	275,079 38	.....	42
86,843 18	.....	135,330 87	.....	162,949 86	.....	153,933 97	.....	43
193,774 07	13,500 00	351,404 78	11,728 50	496,782 77	8,878 75	280,009 33	9,912 00	44
761,956 74	.....	1,070,857 94	.....	1,305,776 51	.....	956,562 24	.....	
159,996 40	.....	158,661 25	.....	159,584 14	.....	158,678 85	.....	
921,953 14	106,469 01	1,229,519 19	110,994 63	1,465,360 65	101,635 77	1,115,241 09	106,288 26	

of $509 10. [5] Including refund of $10.90. [6] Including refund of $47.20. [7] Including refund of $50.50. [8] Including refund from the year 1911-12, is for the Fisheries Patrol Service. † From 1911-12 to 1914-15 Alberta is included with Saskatchewan.

APPENDIX 16.

FISH BREEDING.

To the Deputy Minister of the Naval Service, Ottawa:

SIR,—I have the honour to submit herewith my annual report on the Fish Breeding operations of the department to date, July 25, 1916, for the season of 1915-16. As the distribution of fry from some of the hatcheries is still going on, and a considerable number of salmon and trout are being reared to the fingerling stage, the distribution tables accompanying this report are unavoidably incomplete. There is every indication, however, that the present season's distribution, when finished, will be as large as the record distribution of 1915, although the number of hatcheries is less than last year by four, namely, those that were transferred in August last to the provincial government of Quebec.

While the number of Atlantic salmon, shad, and possibly lobsters, will be smaller than the distribution of 1915, this decrease is more than made up by the increased distribution of salmon trout, whitefish, pickerel and sockeye salmon, so that the total distribution will be as large as that of any previous year. The distribution, as in the past, is almost completely made up of the commercial species, such as lobster and salmon in the Maritime Provinces, salmon trout, whitefish and pickerel in the Great Lakes, whitefish in the Prairie Provinces, and sockeye salmon in British Columbia. The commercial species, which are handled in lots of many millions, are necessarily distributed as fry, but a limited number of trout and salmon, according as the facilities existing at the various hatcheries permit, are reared to the fingerling stage. From present indications, the distribution of advanced fry and fingerlings will, this season, be larger than in any previous year.

SPECIES PROPAGATED.

ATLANTIC SALMON.

The distribution of Atlantic salmon will, this season, be smaller than that of 1915. The parent fish are either purchased from the commercial fishermen, or taken in nets operated by the department and are impounded at Tadoussac, in Quebec, New Mills, St. John, and Miramichi, in N.B., and at Margaree, in N.S.

The early run of fish are taken during the legal fishing season for the Tadoussac, New Mills and St. John ponds, while fishing for the ponds is commenced during the last week in August, at Margaree, and early in September at Miramichi. The usual number of parent fish were obtained from the nets, which were operated by the department at Tadoussac, and although all that were suitable were taken from the fishermen, at St. John, the number fell considerably short of last year. This was also the case at New Mills. At Margaree the net was set at the usual time, namely August 24, but the run of salmon after that date was a great deal smaller than in previous years. Usually at Margaree the river is comparatively low from towards the

end of June until the fall rains, and under these conditions the fish do not enter the river for spawning. Last season, however, the river was higher than usual, and the salmon ascended in small numbers throughout the season, so that when the net was set, the greater part of the usual run had passed. There has never been any difficulty experienced in getting all the fish desired for hatchery purposes in the Miramichi, and it has been customary to draw upon that river to make up any shortage of parent fish at the other ponds. Unfortunately, last fall the Miramichi salmon were diseased, and a large number had consequently to be refused, which prevented the shortage at other ponds from being made up there. The loss in eggs obtained from the Miramichi salmon was also heavier than usual, and was doubtless due to the lower vitality of the parent fish. The cause and nature of the disease was investigated by the Biological board, and will be dealt with by it in a separate report.

The number of eggs obtained from each pond, and the manner in which they were distributed to the different hatcheries, is as follows:

Tadousac Pond . . . . . 3,429,200.

The parent fish were all taken in nets operated by the hatchery officer at point Rouge and Bark cove. The first salmon was taken on May 31, and the last on July 23. Altogether 563 fish were impounded, of which five died in the pond during the summer. The remaining 364 females, and 194 males, yielded 3,429,200 eggs between October 29, and November 13. All the eggs were eyed at the Tadoussac hatchery when 600,000 were transferred to the Ste. Marguerite sub-hatchery, and 1,000,000 to the Bergeronnes sub-hatchery.

New Mills Pond . . . . . 1,121,500 eggs.

The loss of salmon in this pond, which was heavy in 1914, was last season reduced to what is usual under similar conditions. The parent fish were inspected at the pond, and only those that were in good condition there were accepted. The collecting area was also more restricted than in the previous season, and the parent fish, 128 females and 86 males, that were in the pond at stripping time, November 2 to 11, inclusive, were in splendid condition, and yielded 1,121,500 eggs. These were laid down in the Gaspé hatchery, where they have hatched with a small percentage of loss.

Miramichi Pond 13,593,000

As above stated, a large percentage of the late run of salmon in the Miramichi river last season were diseased, and on account of the number that had to be rejected, the department did not succeed in procuring as many as desired. A total of 3,518 fish were impounded, of which 351 died before and during the spawning season, which left 3,167 for stripping. The first eggs were taken on October 26, and between that date and November 22, 13,593,000 eggs were obtained from the 2,137 females and 1,030 male salmon that were stripped. These eggs were distributed as follows:—

Kelly's Pond	1,206,000
Bedford	1,000,000
Windsor	2,000,000
Middleton	1,500,000
Gaspé	1,887,000
Restigouche	2,000,000
Miramichi	4,000,000
Total	13,593,000

After the eggs were eyed 800,000 were transferred from the Miramichi to the Sparkle hatchery, and 750,000 from the Gaspé to the Dartmouth hatchery.

St. John Pond..... 5,110,000 eggs.

Although all the salmon that were suitable were accepted from the commercial fishing stands in St. John harbour, only 867 spawners were procured, as against 1,300 in 1914. These salmon were impounded between June 1 and August 15, and were stripped between October 28 and November 8, inclusive. Five million one hundred and ten thousand eggs were obtained from the 558 females and 309 males that were handled. These were distributed as follows:—

Grand Falls Hatchery	3,510,000
St. John Hatchery	1,600,000

After they were eyed, 200,000 eggs were transferred from Grand Falls to the New Westminster and Cowichan hatcheries, B.C., and 100,000 to the provincial government hatchery at Magog, Que.

Margaree Pond..... 3,040,000

On account of the unusually high water in the Margaree river, during the summer months, the salmon ascended gradually throughout the season, and there was not the usual heavy run from which the hatchery fish are taken in the fall. The net was set at the usual time, but only 457 salmon were taken as against 900 in 1914. Three hundred and ten females and 108 males were available at stripping time, between November 12 and 26, and these yielded 3,040,000 eggs, which were all laid down in the Margaree hatchery. After they were eyed, 700,000 were transferred to the Lindloff sub-hatchery near St. Peters.

OUANANICHE.

For the purpose of ascertaining what quantity of ouananiche eggs were procurable there, the spawning grounds of the Metabetchouan river, Quebec, were inspected by the officer in charge of the Tadousac hatchery last season. Although it was the initial season and the equipment was only such as was needed for inspection purposes, 30,000 eggs were obtained. This is the first occasion on which ouananiche eggs have been collected in the district by this department and arrangements are being made to continue the work this season, with a view to a permanent collecting camp, should results again prove satisfactory.

PACIFIC SALMON.

The total collection of sockeye salmon eggs was greater by over forty million than that of the previous year. Spawning sockeye were more plentiful than they have been for years in the Harrison lake and Pemberton hatchery districts, and as a consequence the collection in those areas was over forty-five million greater than it was in 1914. The collection in the Skeena river watershed was practically the same as that of last season; but there was a decided scarcity of parent fish in the rivers of Vancouver island, and a consequent decrease in the total collection of eggs for the Anderson, Cowichan and Kennedy lake hatcheries.

SPECKLED TROUT.

Although the principal speckled trout establishment operated by this department, i.e., St. Alexis des Monts, was after last year's distribution transferred to the provincial

government of Quebec, the distribution of this species will be little less than that of last year. The collection of eggs from wild trout, by the officers in charge of the Quebec and Maritime Province hatcheries was continued with fairly satisfactory results, although no large increase was effected in any particular district.

The collection by the Tadousac hatchery staff was slightly smaller than that of last year, while eggs of far better quality were taken by the Restigouche hatchery staff in the Causcapscal lakes.

The most satisfactory increase was made by the officers of the Kelly's pond hatchery, Prince Edward Island, where the collection was increased to nearly 460,000 eggs. As was the case in previous seasons over 60 per cent of the female trout that were impounded at the Margaree hatchery did not yield any eggs. These were trout of the sea-run variety and those that did not yield have been marked and held over in the pond during the winter for the purpose of ascertaining if they are biennial spawners. Two hundred and thirteen thousand eggs were obtained, of which 120,000 were transferred to the Middleton hatchery.

The results in the Bartibog river under the direction of the Miramichi hatchery staff, were not as satisfactory as last year so far as numbers were concerned; but a better quality of eggs was obtained. In 1914 the parent fish were taken in the upper waters of Green brook and the Bartibog river, while in 1915, they were taken between June 19 and July 7, in a trap-net near the mouth of the Bartibog, as they ascended that river. The operations were rendered very difficult on account of numerous heavy freshets which swept out the nets on two occasions during the period mentioned. Before the nets could be set the greater part of the early run of trout had ascended, and in addition thereto some that were already crated escaped.

The officer in charge of the Gaspé hatchery also succeeded in collecting 130,000 eggs in the upper waters of the St. John river, Quebec, and with the experience he has gained regarding the date of spawning and the different pools, it is expected that a considerable increase will be effected this year.

The staffs of the Grand Falls, Middleton and Bedford hatcheries also endeavoured to collect trout eggs in the most promising waters in their respective districts, but without success.

SALMON TROUT.

The removal of the close season in the Great Lakes was of the greatest assistance in procuring the necessary supply of salmon trout eggs to fill the department's hatcheries. The great bulk of these eggs are obtained from the commercial catch of fish. In 1914 a comparatively small percentage of the salmon trout taken before the beginning of the close season were ripe, although every reasonable effort was made to supplement the collection from the commercial tugs, the department did not succeed in procuring all the eggs that the salmon trout hatcheries would accommodate. Last season, however, fishing operations were carried on into the spawning season, and all the eggs that the hatcheries would hold were procured. There are four hatcheries, namely, Thurlow, Southampton, Wiarton and Port Arthur, in which the salmon trout are handled, and the supply of eggs for them was obtained at the following points:

Thurlow Hatchery—

Meldrum bay	2,000,000
Kagawong	500,000
Duck island	3,000,000
Cockburn island	2,500,000
Wiarton	2,000,000
Total	10,000,000

Southampton Hatchery—

Southampton	4,271,000
Kincardine	280,000
Goderich	455,000
Wiarton	5,000,000
Total	10,006,000

Wiarton Hatchery—

Meaford	7,262,000
Pound-net, Colpoy's bay	4,506,500
Providence bay	1,603,000
South bay	1,404,000
Rattlesnake	1,180,000
Tobermory	1,743,000
Squaw island	1,890,000
Minks island and Collingwood	2,205,000
Total	21,793,500

As the collection was considerably greater than could be carried at Wiarton, the following transfers were made:—

Province of Quebec	2,462,000
Southampton	5,000,000
Belleville	2,000,000
Total	9,462,000

The balance, 12,331,500, were retained at Wiarton.

Port Arthur—

Lake Nepigon	1,600,000
Arrow lake	600,000
Port Coldwell	550,000
Jackfish	900,000
Rossport	3,300,000
Port Arthur	3,440,000
Fort William	1,750,000
Total	12,140,000

After the eggs were eyed, the following shipments were made from Port Arthur:

Banff hatchery	537,600
New Westminster	16,000

As previously stated, the great bulk of the salmon trout eggs have in the past been taken by spawn-takers employed by the department, on the regular commercial fishing tugs. Last season, however, the greater portion of the Port Arthur collection was obtained from the fishermen, who collected and fertilized the eggs themselves, and were paid by the quart for such as proved to be good. This course was also followed, to a smaller extent, with the owners of the smaller fishing boats on lake Huron and Georgian bay. The eggs obtained in this way compared very favourably with those obtained in the regular way by spawn-takers employed for that purpose.

As the salmon trout are taken commercially in gill nets, and often during stormy cold weather, it is almost impossible to overcome a considerable loss in the eggs obtained from the commercial catch. Such, however, was not the case in the eggs which were taken in the pound-net for the Wiarton hatchery. This pound-net was set and operated for hatchery purposes in Colpoy's bay. The fishermen who set and operated the net received the parent fish that were stripped as remuneration for their trouble and expense. The eggs obtained were of splendid quality and cost the department very little in the first place. They required little attention during incubation, and over 95 per cent of them hatched.

With the satisfactory results obtained last season, it is the intention to increase the number of pound-nets for hatchery purposes in Colpoy's bay this season.

CUTTHROAT TROUT.

The final returns regarding the collection of cutthroat trout eggs for the season are not yet available, but the usual difficulties in this connection were encountered in the Foothills of the Rocky mountains and in British Columbia. In the early part of the season the prospects for a reasonable collection in the Foothills were promising, but a series of heavy freshets occurred, which swept out the nets, and before the water receded so that they could be reset, the run of trout had dispersed to the upper and almost inaccessible waters, from which the eggs could not have been transported if the parent fish could have been located. The same conditions occurred in British Columbia, so that up to date the collection of such eggs is smaller than usual.

KAMLOOPS TROUT.

The Kamloops trout are propagated in the Gerrard hatchery only. The final returns are not yet available, but from present indications the distribution of such fry should be at least as large as it was last season.

WHITEFISH.

The collection of whitefish eggs in Ontario and Manitoba waters was greater than in any previous year, and over 70,000,000 greater than that of 1914. There was an increased collection in the bay of Quinte, lake Ontario, at Bois Blanc, Detroit river, in the French river, Georgian bay, in the lake of the Woods, Ontario, and in the Dauphin and Waterhen rivers, Manitoba, and a decrease in the collection in the eastern end of lake Erie, at Kingsville, and in lake Superior. The two pound-nets that were operated for parent fish in the bay of Quinte last season gave most satisfactory results, and arrangements have been made to increase the number to five this year. It is expected that the necessity for employing seine fishermen, as in previous years, will not exist. The collection in the bay of Quinte was last season increased from 50,000,000 to over 90,000,000 eggs, and after filling the Thurlow hatchery a shipment of 9,000,000 was sent to the Sarnia hatchery.

The collection of eggs in eastern lake Erie, under the direction of the officer in charge of the Sarnia hatchery, was not as successful as in the previous year, as at the time of spawning the commercial catch, from which all the eggs are obtained

from this district, was smaller than usual. The collection in the Kingsville district was also smaller, being only about one-half that of 1914. The collection at Bois Blanc, however, was over double that of the previous year, and made up for the shortage at Kingsville.

An improvement was effected in the French river district, and the collection was increased from 48,000,000, in 1914, to over 61,000,000, in 1915; while the collection in the lake Nipigon and the Port Arthur district generally was practically a failure, less than 3,000,000 eggs in all being obtained.

The collection in the lake of the Woods, although double that of 1914, was also disappointing, only a little over 20,000,000 eggs being obtained. As there is a close season in these waters during the spawning period, a contract was entered into with one of the local fishing firms to operate six pound-nets near Oak island. The fish taken were transferred to an enclosure on the mainland, where they could be handled should the lake freeze up before they were ripe, as it did in the previous year. Whitefish, however, were very scarce and only a little over 2,000 in all were taken before the lake began to freeze over, and it was necessary to remove the nets.

The collections in lakes Winnipeg and Winnipegosis were most satisfactory and the collection of eggs in Dauphin river, lake Winnipeg, was increased from 227,000,000 in 1914, to 273,000,000, last fall. An increase in previous collections was also made in the Waterhen river and neighbourhood, in lake Winnipegosis. The parent fish at both of these places are taken in nets operated by hatchery employees. The three hatcheries, i.e., Selkirk, Gull harbour, and Dauphin river were filled from the Dauphin river, and in addition shipments were made to the Kenora and Fort Qu'Appelle hatcheries. Four pound-nets, in addition to a number of gill-nets, were operated in lake Winnipegosis and after filling that hatchery a shipment of 7,400,000 was sent to the Fort Qu'Appelle hatchery.

Egg collecting operations were again carried on in Long lake for the Fort Qu'Appelle hatchery; but results were no better than they were in 1914. The first fish was taken on October 18, and a small number was taken daily until 1,000 were impounded by November 9, when it was necessary to remove the net on account of ice. The first eggs were obtained on December 11, and between that date and December 18 a total of only 3,300,000 was obtained. In view of the experience during the past two seasons, it has been decided to discontinue egg collecting operations in Long lake, in future, and to endeavour to obtain the supply of eggs for the Fort Qu'Appelle hatchery from lake Winnipeg.

The following statement shows the number of whitefish eggs obtained at the different egg collecting camps and the distribution of the same, viz.:—

Camp.	No. Eggs Collected.	Hatchery.
Bay of Quinte	82,000,000	Thurlow.
"	9,000,000	Sarnia.
Port Dover	21,000,000	Sarnia.
Dunnville, Marshville	4,000,000	Sarnia.
Lowbank	8,600,000	Collingwood.
Horseshoe Harbour	16,400,000	Collingwood.
Evan's Point	3,000,000	Collingwood
"	5,560,000	Sarnia.
Kingsville	53,520,000	Sandwich.
Bois Blanc	77,800,000	Sandwich.
French River	61,625,000	Collingwood.
Lake Nipigon	2,000,000	Port Arthur.
Lake Superior (Black Bay)	800,000	Port Arthur.
Lake of the Woods	20,600,000	Kenora.

The following shipments were transferred from the Sandwich hatchery, viz:—

Port Arthur	20,000,000
Kenora	30,600,000
Lake Winnipeg—	
Dauphin River hatchery	93,000,000
Gull Harbour hatchery	93,000,000
Selkirk hatchery	55,500,000
Fort Qu'Appelle hatchery	15,750,000
Kenora hatchery	15,750,000
Lake Winnipegosis—	
Winnipegosis hatchery	97,000,000
Fort Qu'Appelle hatchery	7,400,000

LAKE HERRING.

The propagation of lake herring in any considerable numbers was undertaken for the first time by this department last season. The collection of such eggs was confined to two points, namely, Port Stanley on lake Erie, and Port Arthur on lake Superior. 115,000,000 were obtained at Port Stanley, of which 90,000,000 were placed in the Sarnia hatchery and 25,000,000 in the Collingwood hatchery. Upwards of 32,000,000 eggs were obtained in Thunder bay, lake Superior, and with the exception of a small shipment to the Banff hatchery, the resultant fry were distributed from Port Arthur. These eggs were taken and fertilized by the fishermen themselves, and the information obtained indicates that with more experience, last season's collection should, in an average season, be considerably increased.

PICKEREL.

A satisfactory increase in the pickerel distribution was attained at Collingwood and Kenora, while there was a decrease at Sarnia and Gull Harbour.

An accumulation of ice on the fishing grounds prevented the fishermen from setting their nets in Point Edward and Sarnia district, so that the early run of fish escaped entirely, and as the season was so far advanced when the ice left the shore, a comparatively small number of nets were set, so that the collection of eggs was much smaller than usual, and the distribution in the district amounted to only 32,000,000.

The eggs at Sarnia are procured entirely from the commercial catch, while in the Georgian bay fishermen were employed with their outfit to take the parent fish at Shawanaga, to obtain eggs for the Collingwood hatchery. The collection in this district was treble that of last year, and amounted to over 31,000,000.

The operations in lake of the Woods were also most satisfactory, and resulted in a collection of nearly 75,000,000 eggs, as against 22,000,000 last season.

On the other hand, operations in lake Winnipeg were not as successful as they have been in the past, and in lake Winnipegosis were almost a total failure. In lake Winnipeg, while a larger number of eggs were obtained, there was a great scarcity of male fish, and the loss in the eggs was large, due to imperfect fertilization; for instance, on May 12 2,500 fish were taken, of which only forty were males.

In lake Winnipegosis the parent fish were taken at Salt point, across the lake, and on account of ice conditions, were unable to be transferred to the hatchery, but had to be held at the collecting camp for nearly three weeks. Under these conditions it is not surprising that very few of them hatched.

SHAD.

The floating shad hatchery on the St. John river was again this season operated at the head of Darling's island on the Kennebecasis river. The results, however, were disappointing, as the fishery was practically a failure in the neighbourhood of the hatchery, and very few eggs were taken. The total distribution amounted to only 261,000 fry.

The propagation of shad was also carried on in the Nictaux river, Nova Scotia, as fishing for shad is permitted in the Annapolis and Nictaux rivers on Mondays and Tuesdays during the season previous to June 1. Upwards of 500,000 eggs were handled in the Middleton hatchery, and the resultant 300,000 fry were distributed in the Nictaux river.

CATFISH.

The seining of young catfish from the Red river, for distribution in the smaller lakes in southern Manitoba, did not meet with success. At the time that they are usually obtainable the river was in flood, and all the adjoining low land was covered with water.

The young fish were, therefore, not in the places where they were usually found, and even if they were, they could not have been located on account of dirty water.

LOBSTERS.

The final returns for the fourteen lobster hatcheries operated by the department are not yet available, but from present indications the distribution will be slightly larger than that of 1915. Arrangements have been made for the transfer of several millions of lobster fry from the Canso hatchery to Bedford basin, in accordance with the recommendation of the Shellfish Fisheries Commission.

The Long Beach lobster pond was again in operation. The collection of berried lobsters was increased from 219, in 1915 to 745 this season. This increase was due to a change in the method of collection. Previous to this season, the fishermen were paid 25 cents each for the lobsters, which were collected from them by departmental employees. This season $1 each was paid for all berried lobsters delivered at the pond in good condition and with a normal number of eggs attached. A loss of ten lobsters took place in the pond during the season, and with the exception of eighteen, which are up to the present unaccounted for, and are probably in the pond, the balance were at the end of the fishing season distributed as near as practicable in the areas from which they were obtained.

RESULTS.

The catch of whitefish in the Canadian portion of the lower end of lake Huron is reported last year to have been larger than for twenty years past, and the number of small whitefish in this district is increasing yearly as a result, no doubt, of the distribution from the Sarnia hatchery.

Salmon are also reported to be again frequenting the rivers of Hants and Kings counties, Nova Scotia, as a result of the distribution from the Windsor hatchery.

The most notable results from artificial propagation and judicious protection is probably seen in the Restigouche hatchery, as reported by the officer in charge of that establishment as follows:

"The yield of the commercial salmon fishery in the bay this season far exceeds that of anything ever known in the history of the country. The fish for some cause appeared to linger and play about in the bay longer than usual. Consequently, the majority of stands made immense catches.

"Some good scores have been made, and on the whole I hear the anglers are well satisfied and that the rivers are now well filled with stocked fish. The conditions for angling at first were not as favourable as usual. The first sprinkling of fish entered the rivers early in May, passing directly up to the upper reaches and pools. In the meantime, as I have stated, the larger schools lingered in the bay, and the rivers dropped down very low, and when the large body of the fish came, angling was almost confined to the large pools. The fish were even larger than usual. Two gentlemen holding water on the lower Metapedia made a score of some thirty fish in ten days, with an average of twenty-seven pounds. This is the largest ever known on the Restigouche or its tributaries. I heard from one buyer that the first 12,000 pounds he purchased, the fish averaged over twenty-five pounds. This is something unusual.

"I have heard of large numbers of adult fish going up the small brooks to spawn, something unheard of a few years ago; but as the fish increase in the main streams a large percentage will ascend the small brooks to spawn.

"There has not been a poor year on the Restigouche now for ten or twelve years, and I am quite sure with the protection and hatchery work there will not be a return of any more off-years."

EXAMINATION OF RIVERS.

The Survey of salmon rivers in the Maritime Provinces, which was undertaken two years ago, has been extended to the following streams, viz.:—

Musquash stream, St. John county.
Tynemouth creek, " "
Salmon river " "
Kennebecasis river " "
Belleisle river, " "
Nashwaak river, " "
Jemseg, Grand lake, " "
Washademoak river, " "
Nerepis river, " "
Keswick river " "
Oromocto river, " "
Becaguimac stream, Carleton county.
Meduxnekeag stream, " "
Eel river, " "
Pocologan stream, Charlotte county.
Pollet river, Westmorland and Albert counties.
Salmon river, Westmorland and Albert counties.
Petitcodiac river, Westmorland county
Nigado river, Gloucester county.
Millstream river, " "
Tetagouche river, " "
Middle river, " "
Little river, " "
Caraquet river, " "
Pokemouche river, " "
Big Tracadie river, " "
Little Tracadie river, Gloucester county

MARKING OF SALMON.

The tagging of salmon was continued at each of the five salmon retaining ponds during the season of 1915. The following statement shows the weight, length, condition, sex, date and place of liberation, and of capture of the fish bearing the tags that have been returned to the department to date.

Tadoussac Pond.

Number.	Weight.	Length.	Condition.	Sex.	Date.	1 Where liberated. 2 Where caught.
	Lbs.	Ins.				
525	15	35	Kelt	F.	Nov. 4, 1914	Tadousac.
	13	35	"	"	June 12, 1915	St. Catherine, at mouth of Saguenay river.

New Mills Pond.

680	15	38	Kelt	F.	Nov. 6, 1914	New Mills.
	14½	38	"	"	June 3, 1915	Matapedia.
1586	14½	36	"	"	Oct. 30, 1913	Tide head, Restigouche river.
			"	"	June 13, 1914	Chaleurs Bay.

Miramichi Pond.

296	13	36	Kelt	F.	Oct. 27, 1913	South Esk.
			"	"	June 1914	Miramichi river., near Newcastle.
299	6	28	"	"	Oct. 27, 1913	South Esk.
	16	36	Clean	"		(a)
388	5½	27	Kelt	M.	Oct. 31, 1913	South Esk.
	5	28	"	"	June 1914	Miramichi river, near Loggieville.
435	8	31	"	F.	Nov. 6, 1915	South Esk.
	21½	37	Clean	"	July 5, 1915	N.W. branch Miramichi,
461	10	33	Kelt	"	Nov. 13, 1913	South Esk.
	10		"	"	June 1914	Miramichi river, near Newcastle.
492	13	35	"	M.	Nov. 13, 1913	South Esk.
	17	35	Clean	"	Aug. 31, 1915	Bryenton, S.W. Miramichi.
736	6½	27	Kelt	F.	Oct. 30, 1914	South Esk.
	10	28	"	"	June 4, 1915	Millerton, S.W. Miramichi.
749	10	31	"	"	Oct. 30, 1914	South Esk.
	14	32	"	"	June 20, 1915	Strathadain, N.W. Miramichi.
760	12½	34	"	M.	Nov. 3, 1914	South Esk.
	16	35	Clean	"	Aug. 10, 1915	Indiantown, S.W. Miramichi.
786	11	32	Kelt	F.	Nov. 3, 1914	South Esk.
	14	32	"	"	June 15, 1915	Red Bank, N.W. Miramichi.
1329	11	33	"	"	Nov. 17, 1915	South Esk.
	11½	33	"	"	Dec. 7, 1915	Near Chatham, N.B.

St. John Pond.

107	7	30	Kelt	F.	Nov. 6, 1913	St. John Harbour.
	14½	34½	Clean	"	July 5, 1915	Branch Pool, Forks of Tobique.

St. John Pond—Con.

Number.	Weight.	Lenght.	Condition	Sex.	Date.	1. Where Liberated. 2. Where Caught.
	Lbs.	Ins.				
1405	6	31	Kelt	F.	Nov. 12, 1914	St. John Harbour.
	20	38	Clean	"	June 21, 1916	Stickney, Carleton Co.
1432	6	31	Kelt	"	Nov. 12, 1914	St. John Harbour.
			Clean	"	June 9, 1916	Near Falls at St. John.
1175	6	31	Kelt	"	Nov. 5, 1915	St. John Harbour.
	7		"	"	Apr. 26, 1916	Gorham's Creek, St. John river.
1178	9	31	"	"	Nov. 5, 1915	St. John Harbour.
	7¼	31	"	"	Apr. 28, 1916	Gorham's Creek, St. John river.

Margaree Pond.

152	16	36	Kelt	M.	Nov. 13, 1913	Margaree river, tidal waters.
	18	36	Clean	"	June 3, 1914	Below Margaree Forks.
161	10	24	Kelt	"	Nov. 13, 1913	Margaree river, tidal waters.
	24½	39	Clean	"	July 12, 1915	Half mile from Harbour entrance.
164	12	24	Kelt	"	Nov. 13, 1913	Margaree river, tidal waters.
	21½	37	Clean	"	July 5, 1915	Three miles west of entrance to Margaree Harbour.
187	10	24	Kelt	F.	Nov. 13, 1913	Margaree river, tidal waters.
	26		Clean	"	Aug. 15, 1914	Margaree Forks.
183	18	36	Kelt	"	Nov. 13, 1913	Margaree river, tidal waters.
	17	36	Clean	"	June 10, 1914	Below Margaree Forks.
196	12	24	Kelt	"	Nov. 13, 1913	Margaree river, tidal waters.
	18½	38½	Clean	"	July 15, 1915	Port Hood.
204	14	36	Kelt	"	Nov. 15, 1913	Margaree river, tidal waters.
	16		Clean	"	June 2, 1915	Margaree river, Barrick Pool.
210	14	24	Kelt	"	Nov. 15, 1913	Margaree river, tidal waters.
	23	38	Clean	"	Aug. 3, 1915	Grand Etang.
217	18	36	Kelt	"	Nov. 15, 1913	Margaree river, tidal waters.
	18		Clean	"	Aug. 27, 1914	Margaree Forks.
230	10	24	Kelt	"	Nov. 15, 1913	Margaree river, tidal waters.
	20	36	Clean	"	Nov. 15, 1915	E. Margaree, (Dep'ts nets).
243	12	24	Kelt	"	Nov. 17, 1913	Margaree river, tidal waters.
	21½		Clean	"	June 25, 1915	One mile east Margaree Harb'r.
246	16	36	Kelt	"	Nov. 17, 1913	Margaree river, tidal waters.
			Clean	"	June 2, 1914	N.E. Margaree.
250	12	24	Kelt	"	Nov. 17, 1913	Margaree river, tidal waters.
	25		Clean	"	Aug. 14, 1915	Half mile from Pond River and 35 miles from Margaree river.
819	9	28	Kelt	"	Nov. 14, 1914	Margaree river, tidal waters.
	20		Clean	"	June 10, 1915	Margaree river, Barrick Pool.

Margaree Pond Con.

Number.	Weight.	Length.	Condition.	Sex.	Date.	1 Where Liberated. 2 Where Caught.
	Lbs.	Ins.				
834	18	34	Kelt	F.	Nov. 14, 1914	Margaree river, tidal waters.
	11½	38	"	"	Nov. 22, 1915	Margaree river, (Dep'ts nets)
844	18	39	"	"	Nov. 14, 1914	Margaree river, tidal waters.
	18		"	"	June 3, 1915	Margaree river, Barrick Pool.
929	16	35	"	"	Nov. 17, 1914	Margaree river, tidal waters.
	19	38	"	"	June 5, 1915	Creek, East Margaree.
934	6	28	"	"	Nov. 17, 1914	Margaree river, tidal waters.
	6	28	"	"	June 3, 1915	Creek, East Margaree.
1101	7	28	"	"	Sept. 14, 1915	Margaree river, tidal waters.
	7	29	Clean	"	Nov. 15, 1915	Margaree river, (Dep'ts nets).
895	9	30	Kelt	"	Nov. 14, 1914	Margaree Harbour.
	24	30	Clean	"	June 24, 1916	Pleasant Bay.

a. The salmon bearing tag 299 was shipped by W. S. Loggie of Chatham, N.B., to Messrs. Baxter & Son, of Billingsgate, London, Eng. In December, the tag was returned to the department by the president of the English Board of Agriculture and Fisheries through the Secretary of State for the Colonies.

b. Weighed after stripping.

The term kelt is applied in the above table to the salmon at the time they were tagged, as they had been in the respective retaining ponds for varying periods during the previous summer, and had all been stripped before they were tagged and liberated. They were taken in nets as clean-run fish in the vicinity of the respective ponds, and were liberated in the same neighbourhood. At Tadousac, New Mills and St. John ponds, they were taken and impounded previous to August 15, and at Miramichi and Margaree ponds during September, October and November.

NEW HATCHERIES.

No new hatcheries were built during the past season, but a subsidiary station was erected on Cultus lake to accommodate the surplus sockeye eggs collected in the district and which could not be handled in the Harrison and Pemberton hatcheries. The capacity of this sub-station was later supplemented by eighteen troughs, 16 feet long, which were set up outside and to which a portion of the eggs were transferred just previous to hatching.

The dwelling-house for the officer in charge of the Kennedy lake hatchery, Vancouver island, which was referred to as being under construction in my last report, has also been completed, and twenty fry ponds, each 20 feet long by 4 feet wide, were built at the Harrison lake hatchery.

A contract has also been let for a large whitefish and herring hatchery at Kingsville, lake Erie, which it is expected will be in operation during the coming fall. Arrangements have also been made for the erection of a sub-hatchery or eyeing

station on Upper Pitt lake, which will be operated in conjunction with the Harrison lake hatchery. The building will be 55 feet long by 16 feet wide and will contain eighteen troughs, each 16 feet long by 16 inches wide.

REPAIRS AND IMPROVEMENTS.

The grounds surrounding the Middleton hatchery and residence have been further improved by the planting of a number of shade trees, which add greatly to their appearance. The dam at the Dartmouth hatchery has been overhauled and repaired and a new wing added to it. A stable has been built, and the land immediately surrounding the buildings has been cleared, levelled and seeded.

Among the more important improvements effected during the past season is a filtered water supply for the Thurlow hatchery and a protection crib for the enclosures for parent fish that has been built in front of that establishment. The intake pipe has been extended into the bay a distance of 200 feet, where it leads into a hollow crib. This crib is filled with stone and crushed rock, which form an effective filter, thus assuring a reasonably clean water supply no matter what the conditions are in the bay, and removing the difficulty in this connection that was encountered last season. The protection for the parent fish adjoins and is connected with the intake pier. Previous to last season the parent fish were retained in crates near where they were taken; but the greater number are now transferred to the enclosure at the hatchery, where they are held in pound-net pots.

A sea-wall has been built to protect the Port Arthur hatchery, which is on an island, and the grounds have been re-arranged and laid out with gravel walks, shrubbery, shade trees and flower beds.

A new spawn-collecting camp was established at the entrance to the Waterhen river for the Winnipegosis hatchery. Some preliminary dredging was done in the harbour and the channel leading thereto at this establishment, and a new dam was built at the Anderson lake hatchery.

In addition to the above, the machinery in all the hatcheries was overhauled and necessary repairs were made.

The transfer of the four hatcheries in the interior portion of Quebec, to the government of that province, referred to in my last report, has been effected, and as no new hatcheries have been built in the meantime, the department has at present, exclusive of collecting camps and stations, fifty-one hatcheries, nine subsidiary hatcheries, five salmon retaining ponds and one lobster pound in operation.

As above stated, the distribution for the present season of 1916 is incomplete; but the following table gives the hatcheries in operation, their location, date of establishment and the distribution that has been made from each one up to the present time this season. Following this statement are tables, showing the distribution to date from the various hatcheries.

I have the honour to be, sir,
Your obedient servant,

J. A. RODD,
Superintendent of Fish Culture.

The following tables give the hatcheries that were operated, their location, date of establishment, species and number of each species of fish distributed from each one during the season of 1916, viz :—

Distribution of Fry, 1916.

Established	Hatchery.	Location.	Species.	Quantity. Fry.	Quantity. Advanced Fry and Fingerlings.	Total Distribution.
1875	Bedford	Halifax Co., N.S.	Atlantic Salmon	565,000		
	"	" "	Speckled Trout	100,000		665,000
1902	Margaree	Inverness Co., N.S.	Atlantic Salmon	1,960,000	e 128,575	
	"	" " "	Speckled Trout	85,000		2,173,575
1906	Winsdor	Hants " "	Atlantic Salmon	1,303,000	f 7,175	1,310,175
1912	Middleton	Annapolis " "	" "	- 540,000		
	"	" " "	Speckled Trout	94,000	e 14,000	
	"	" " "	Shad	300,000		948,000
1912	a Lindloff	Richmond " "	Atlantic Salmon	680,000		680,000
1891	Bay View	Pictou " "	Lobster	61,500,000		61,500,000
1905	Canso	Guysborough Co., N.S.	"	85,000,000		85,000,000
1911	Isaac's Harbour	" " "	"	28,860,000		28,860,000
1911	Inverness	Inverness " "	"	58,000,000		58,000,000
1911	Arichat	Richmond " "	"	52,946,800		52,946,800
1911	Antigonish	Antigonish " "	"	71,000,000		71,000,000
1912	Little Bras D'Or	Cape Breton " "	"	51,700,000		51,700,000
1913	b Long Beach Pound	Digby " "	"	709		709
1874	Restigouche	Restigouche " N.B.	Atlantic Salmon	1,512,000		
	"	" " "	Speckled Trout	98,600		1,610,600
1874	Miramichi	Northumber'd Co., N.B	Atlantic Salmon	2,380,000		
	"	" " "	Speckled Trout	55,000		2,435,000
1880	Grand Falls	Victoria Co., N.B.	Atlantic Salmon	1,322,000	g 30,000	1,352,000
1914	St. John.	St. John " "	"	1,065,000		1,065,000
1914	a Nepisiguit	Gloucester " "	"	390,000		390,000
1915	a Tobique	Victoria " "	"	701,500		701,500
1915	a Sparkle	Carleton " "	"	515,000		515,000
1912	h Shad St. John R.	Kings " "	Shad	261,000		261,000
1903	Shemogue	Westmoreland Co., N.B	Lobster	107,000,000		107,000,000
1904	Shippegan	Gloucester Co., N.B.	"	39,000,000		39,000,000
1912	Buctouche	Kent " "	"	43,700,000		43,700,000
1906	Kelly's Pond	Queen's Co., P.E.I.	Atlantic Salmon	565,500		
	"	" " "	Speckled Trout	398,550		964,050
1904	Charlottetown	" " "	Lobster	68,000,000		68,000,000
1909	Georgetown	King's " "	"	43,000,000		43,000,000
1875	Tadousac	Saguenay Co., Que	Atlantic Salmon	1,666,873		
	"	" " "	Speckled Trout	77,000		
	"	" " "	Ouananiche	22,000		1,765,873
1875	Gaspe	Gaspe " "	Atlantic Salmon	1,622,000		
	"	" " "	Speckled Trout	117,000		1,739,000
1906	a Ste. Marguerite	Saguenay " "	Atlantic Salmon	600,000		600,000
1909	a Bergeronnes	" " "	"	1,000,000		1,000,000
1915	a Dartmouth	Gaspe " "	"	720,000		720,000
1910	Port Daniel	Bonaventure Co., Que.	Lobster	18,660,000		18,660,000
1910	House Harbour	Magdalen Islands, "	"	58,000,000		58,000,000
1876	Sandwich	Essex Co., Ont.	Whitefish	63,000,000		63,000,000
1908	Sarnia	Lambton " "	"	16,500,000		
	"	" " "	Pickerel	32,000,000		
	"	" " "	Herring	23,500,000		72,000,000
1912	Collingwood	Simcoe " "	Whitefish	19,500,000		
	"	" " "	Pickerel	28,000,000		
	"	" " "	Herring	3,000,000		50,500,000
1908	Wiarton	Bruce " "	Salmon Trout	8,820,200	g 40,000 88,156	8,948,356
1912	Port Arthur	Thunder Bay Dist., Ont	"	8,551,000	800,000	
	"	" " "	Whitefish	19,790,000		
	"	" " "	Herring	13,085,000		42,226,000
1912	Southampton	Bruce Co., Ont	Salmon Trout	6,434,750		6,434,750
1915	Thurlow	Hastings " "	" "	6,687,000		
	"	" " "	Whitefish	59,000,000		65,687,000
1915	Kenora	Rainy River Dist, Ont	"	60,498,000		
	"	" " "	Pickerel	68,833,200		129,331,200

Distribution of Fry, 1916—*Concluded.*

Established.	Hatchery.	Location.	Species.	Quantity. Fry.	Quantity. Advanced Fry and Fingerling	Total Distribution.
1894	Selkirk	Selkirk, Man.	Whitefish	35,000,000		35,000,000
1912	Gull Harbour	Big Island, Lake Winnipeg, Man.	"	50,000,000		66,000,000
			Pickerel	16,000,000		
1914	Dauphin River	Dauphin River, Lake Winnipeg, Man.	Whitefish	80,000,000		80,000,000
1909	Winnipegosis	Snake Island, Lake Winnipegosis, Man.	"	85,000,000		85,000,000
1915	Fort Qu'Appelle	Fort Qu'Appelle, Sask.	"	15,920,000		15,920,000
1914	Banff	Banff, Alberta	Salmon Trout	446,000	*g* 100,000	
	"	" "	Herring	4,170,500		4,716,500
1914	*a* Pirmez Creek	Pirmez Creek, Alberta.	No collection			
1905	Harrison Lake	Harrison Lake, B.C.	Cohoe Salmon	1,164,000		
	" "	" "	Sockeye "	38,040,000		
	" "	" "	Spring "	*c* 2,540,000		
	" "	" "	Humpback Salmon	*c* 3,549,000		45,293,000
1906	Pemberton	Birkenhead River, B.C	Sockeye Salmon	22,892,000		23,892,000
			"	*d* 1,000,000		
1908	Stuart Lake	Stuart Lake, B.C.	"	2,840,000		
	"	" "	"	*d* 2,242,000		5,082,000
1915	Queen's Park	New Westminster, B.C	Cohoe Salmon	488,000		
	" "	" "	Sockeye "	187,800		
	" "	" "	Speckled Trout	75,000		
	" "	" "	Humpback Salmon	285,000		
	" "	" "	Whitefish	25,000		1,060,800
1903	Skeena River	Lakelse Lake, B.C.	Sockeye Salmon	4,113,317		4,113,317
1908	Babine Lake	Babine Lake "	" "	7,088,940		7,088,940
1906	Rivers Inlet	Owekano Lake "	" "	11,994,100		
	" "	" "	" "	*d* 600,000		12,594,100
1910	Anderson Lake	Anderson Lake, Vancouver Island, B.C.	" "	4,078,000		
	" "	" "	Cohoe "	197,726		4,275,726
1910	Cowichan Lake	Cowichan Lake, Vancouver Island, B.C.	Spring "	576,400		
	" "	" "	Cohoe "	1,492,100		
	" "	" "	Atlantic "	183,300		
	" "	" "	Steelhead "	38,600		
	" "	" "	Lake Trout	4,872		
	" "	" "	Speckled Trout	14,000		
	" "	" "	Cutthroat "	53,600		2,362,872
1910	Kennedy Lake	Kennedy Lake, Vancouver Island, B. C.	Sockeye Salmon	3,888,000		3,888,000
1914	Gerrard	Trout Lake, Kootenay District, B.C.	Kamloops Trout	50,000	*f* 2,278	
	"	" "	Kokanee "	179,975		
	"	" "	Speckled "	325,050		557,303
	Nimpkish	Alert Bay, B.C.	Sockeye Salmon	4,980,000		4,980,000
			Grand Total	1,646,004,253	1,210,184	1,647,214,437

a Subsidiary hatcheries.
b Berried Lobsters not included in total distribution.
c Eggs. These had to be liberated to make room for more sockeye.
d Eyed eggs.
e Advanced fry.
f Fingerlings.
g Distributed 1915.
h Floating hatchery.

NOVA SCOTIA.

BEDFORD HATCHERY.

Waters.	County.	Atlantic Salmon.	Speckled Trout.
Indian river	Halifax	50,000	
Nine Mile river	"	50,000	
Little Salmon river	"	50,000	
Pennant river	"	50,000	
Sackville "	"	50,000	
Shubenacadie river	"	50,000	
Musquodobbit "	Colchester	50,000	
St. Mary "	Guysborough	45,000	
Gold "	Lunenburg	30,000	
Mushamush "	Lunenburg	30,000	
Middle "	"	30,000	
Martins "	"	30,000	
Petite rivière	"	20,000	
Roseway river	Shelburne	30,000	20,000
Secret Lake	Halifax		10,000
Half Moon Lake	"		10,000
Five Island "	"		10,000
Wentzels "	Lunenburg		15,000
Cleveland "	Cumberland		10,000
McCormicks "	"		10,000
Five Mile "	Hants		15,000
		565,000	100,000

Total distribution 665,000

MARGAREE HATCHERY.

	Trout.	Salmon.	Advanced Salmon.
	Fry.	Fry.	Fry.
Forest Glen	15,000		
Stuart brook	15,000		
Marsh brook	15,000		
Hatchery brook	40,000		3,575
Baddeck river		120,000	
Little River Cheticamp		100,000	
Indian brook		100,000	
Middle river		100,000	
Iron Bridge		140,000	
Cameron brook		40,000	
Etheridge crossing		200,000	
Croudis bridge		160,000	
Cranton bridge		160,000	
Harts pool		120,000	
Joseph Ross brook		140,000	
McDermid crossing		140,000	
James Ross bridge		80,000	
George Coady crossing		80,000	
Ingrahams brook		100,000	
Murphy bridge		60,000	
Greigg's crossing		120,000	
Ingraham and Lovis brook			125,000
	85,000	1,960,000	128,575

Total distribution 2,173,575

WINDSOR HATCHERY.

	Salmon Fry.	Salmon Fingerlings.
Avon river, Hants Co.	313,000	7,175
Meander river, Hants Co.	100,000	
Kennetcook river, Hants Co.	100,000	
Cornwallis river, Kings Co.	100,000	
Gaspereaux river, Kings Co.	240,000	
Great Village river, Colchester Co.	150,000	
Middle river, Pictou Co.	200,000	
West river, Pictou Co.	100,000	
	1,303,000	7,175
Total distribution	1,310,175	

LINDLOFF HATCHERY.

Subsidiary to Margaree Hatchery.

	Atlantic Salmon Fry.
Maddans river	30,000
Lillard river, east branch	30,000
Lillard river, west branch	90,000
Black river	40,000
Scott's river	40,000
Inhabitants river	75,000
Framboise river	40,000
Grand river	75,000
Salmon river	75,000
Dennys river	75,000
Washabuck	50,000
McRae's lake	20,000
Hatchery lake and brook	40,000
Total distribution	680,000

LONG BRANCH LOBSTER POND.

	Berried Lobsters.
Westport Harbour and Pond Cove	228
Flower Cove, near Westport	22
Bay of Fundy, above Tiverton and East Ferry	27
Bay of Fundy, near Digby	30
Mink Cove in St. Mary's Bay	20
Sandy Cove, in St. Mary's Bay	130
French Shore in St. Mary's Bay	11
Between Petite Passage and Long Beach, St. Mary's Bay	96
Near Long Island	10
Little River	5
Between Long Beach and Little River	27
Long Beach	77
St. Mary's Bay	26
Total distribution	709

(Not included in the distribution figures.)

ANTIGONISH HATCHERY.

	Lobsters.
Pomquet island	8,000,000
Mayett beach	7,000,000
Monk Head	8,000,000
Bayfield	4,000,000
Breen beach	4,000,000
Little Tracadie Head	4,000,000
Tracadie Head	12,000,000
Boman Head	8,000,000
Harbour au Bouche	8,000,000
Cape Jack	8,000,000
Total distribution	71,000,000

ARICHAT HATCHERY.

	Lobsters.
Jersey island	1,150,000
West Arichat	8,500,000
Green island	1,750,000
Cape La Ronde	6,896,800
Madame island	1,500,000
Petit de Grat	4,200,000
Grosnez	1,000,000
Cape Auguet	4,000,000
Little Anse	4,000,000
Lennox Passage	4,750,000
Rockdale	8,200,000
Bourgeois river	7,000,000
Total distribution	52,946,800

BAY VIEW HATCHERY.

	Lobsters.
Pictou island	19,000,000
Bayview	9,500,000
Gull Rock	11,000,000
Pictou harbour	7,000,000
Cariboo island	8,000,000
Little Cariboo island	7,000,000
Total distribution	61,500,000

CANSO HATCHERY.

	Lobsters.
Fox island	9,625,000
North of Canso	7,709,000
Bedford	8,000,000
Canso	18,480,000
Dover bay	5,775,000
White Head	6,930,000
Queensport	8,470,000
Cranberry Light	8,470,000
St. Andrew's Channel and Dover	11,550,000
Total distribution	85,000,000

INVERNESS HATCHERY.

	Lobsters.
Grand Etang	7,000,000
Chimney Corner	5,000,000
Inverness	5,000,000
Cape Rouge	8,000,000
Belle Cote	2,000,000
Margaree harbour	5,000,000
Pleasant bay	4,000,000
Cheticamp	5,000,000
Little river	3,000,000
Broad Cove marsh	5,000,000
Friar's Head	2,000,000
Eastern harbour	7,000,000
Total distribution	58,000,000

ISAAC'S HARBOUR HATCHERY.

	Lobsters.
Tor bay point	2,120,000
Beckerton	1,000,000
Bear Trap Head	1,000,000
Shoal point	2,000,000
Charles cove	2,000,000
Big island	500,000
Goose island	2,500,000
Betty cove	1,500,000
Drum Head island	500,000
Country harbour	2,000,000
Coddles harbour	2,000,000
New harbour	5,000,000
Black Ledge	2,000,000
Scraggly Ledge	3,000,000
Graham shoal	500,000
Island harbour	1,000,000
Fesunman harbour	240,000
Total distribution	28,860,000

LITTLE BRAS D'OR HATCHERY.

	Lobsters.
Bird island	7,500,000
Little Bras D'Or	15,200,000
Big Bras D'Or	5,500,000
Low point	9,000,000
Big pond	4,000,000
South Bar	3,000,000
Mill pond	4,500,000
Sydney bay	3,000,000
Total distribution	51,700,000

MIDDLETON HATCHERY.

	County.	Speckled Trout Fry.	Advanced Trout Fry.	Atlantic Salmon Fry.	Shad Fry.
Skinner lake	Yarmouth	14,000			
Annis lake	"	13,000			
Pearl lake	"			50,000	
Hooper lake	"			40,000	
Sissibo river	Digby	22,000			
Silver river	"	20,000			
Spectacle lake	"			25,000	
Mersey river	Annapolis	25,000			
Annapolis river—					
Nictaux brook	Annapolis			25,000	
Morton brook	"			25,000	
McGill lake	"			100,000	
Lequille river	"			70,000	
Round Hill river	"			40,000	
Nictaux river	"			15,000	300,000
Critchell brook	"		5,000		
Park brook	"		3,000		
Kelley lake	"		6,000		
Fales river	Kings			60,000	
Aylesford brook	"			40,000	
Mersey river	Queens			50,000	
		94,000	14,000	540,000	300,000
Total distribution					948,000

NEW BRUNSWICK.

RESTIGOUCHE HATCHERY.

	Salmon Fry.	Speckled Trout Fry.
Restigouche river—		
Slide 38 miles from hatchery	320,000	
Two brooks	320,000	
Cross Point island	320,000	
Matapedia river—		
Near Salmon lake	40,000	
Causcapscal	35,000	
St. Florence	35,000	
Appell	22,000	
Upsalquitch	300,000	
Causcapscal river	35,000	
Jacquet river	25,000	
Charlo river	25,000	
Benjamin river	25,000	
Bouly's lake	10,000	
Howard's lake		5,000
Causcapscal lakes		50,000
Maguire's lake		10,600
Lily lake		8,000
Twelve Mile lake		15,000
Fourteen Mile lake		10,000
	1,512,000	98,600
Total distribution		1,610,600

MIRAMICHI HATCHERY.

	Atlantic Salmon Fry.	Speckled Trout Fry.
Main Northwest Miramichi and tributaries	800,000	
Little Southwest Miramichi and tributaries	700,000	
Sevogle	150,000	
Millstream	150,000	5,000
Black river	100,000	
Buctouche river	75,000	
Petitcodiac river	75,000	
Richibucto river	100,000	
Nashwaak river	75,000	
Canaan river	80,000	
Kouchibouguac river	75,000	
Bartibog river and tributaries		50,000
	2,380,000	55,000
Total distribution		2,435,000

SPARKLE HATCHERY.

(Subsidiary to Miramichi Hatchery.)

	Atlantic Salmon.
South West Miramichi river—	
Main River—	
Five Mile brook	50,000
Gold brook	40,000
Bigger brook	50,000
South branch—	
Clearwater brook	40,000
Bogan brook	30,000
Falls brook	20,000
Elliott brook	40,000
Main branch	45,000
North branch—	
McKenzie brook	40,000
Beedal brook	50,000
Juniper brook	30,000
Simpson brook	30,000
Main branch	50,000
Total distribution	515 000

GRAND FALLS HATCHERY.

	Salmon Fry.	Salmon Fingerlings.
St. John River	857,000	30,000
Salmon river	465,000	
	1,322,000	30,000
Total distribution		1,352,000

In addition to the above, Atlantic Salmon eyed eggs were shipped to the following hatcheries—

New Westminster, B.C.	200,000
Magog, P.Q.	100,000
	300,000

TOBIQUE HATCHERY.

(Subsidiary to Grand Falls Hatchery).

	Salmon Fry.
Tobique river—	
Tobique forks	115,000
Rocky brook	40,000
Blue Mountain brook	70,000
Riley brook	120,000
Two brooks	75,000
Haley brook	150,000
Near hatchery	131,500
Total distribution	701,500

ST. JOHN HATCHERY.

	Atlantic Salmon Fry.
St. John river—	
Jemseg river	80,000
Salmon river, Queens Co.	50,000
Washademoak lake	80,000
Belle Isle river	80,000
Great Salmon river	40,000
Little Salmon river	40,000
Tynemouth creek	25,000
Shogomoc river	40,000
St. Croix river	50,000
Skiff lake	40,000
Palfrey lake, York county	50,000
Loch Lomond	40,000
Black river	50,000
Pocologan river	30,000
Kennebecasis river—	
South branch	80,000
Millstream, Kings Co.	80,000
Smith creek	80,000
Trout brook	80,000
Musquash river—	
North West branch	50,000
Total distribution	1,065,000

NIPISIGUIT HATCHERY.

(Subsidiary to Restigouche Hatchery).

	Atlantic Salmon Fry.
Middle river	25,000
Restigouche river	25,000
Nipisiguit river—	
Falls pool	30,000
Camp pool	40,000
Mouth of Basin	30,000
Grilse pool	48,000
Church point	25,000
Chain pool	20,000
Bear Island pool	10,000
Club House	25,000
Long pool	5,000
Papineau river	20,000
Knight's brook	39,000
Marshall's beach	20,000
Gilmore's brook	10,000
Middle Island pool	18,000
Total distribution	390,000

SHAD HATCHERY.

	Shad.
Kennebecasis river—	
Darling's Lake spawning grounds	261,000

SHIPPIGAN HATCHERY.

	Lobsters.
Caribou creek	10,000,000
Pointe à Peinture	6,000,000
Pointe Brulé	11,000,000
Shippigan harbour	8,000,000
Alexander's point	4,000,000
Total distribution	39,000,000

BUCTOUCHE HATCHERY.

	Lobsters.
Buctouche beach	7,200,000
St. Edwards	6,000,000
St. Anne's	2,400,000
Buctouche harbour	10,100,000
Cormierville	4,800,000
Cocagne bar	2,400,000
Richibucto cape	3,600,000
Cocagne head	3,600,000
Between St. Anne's and St. Edwards	3,600,000
Total distribution	43,700,000

SHEMOGUE HATCHERY.

	Lobsters.
Murray corner	11,000,000
Near hatchery	12,000,000
Little cape	12,000,000
Bald Cape	12,000,000
Grant's corner	9,000,000
Tormentine cape	17,000,000
Leger's brook	12,000,000
Bayfield	7,000,000
Dupuis corner	5,000,000
Bald cape and Dupuis corner	10,000,000
Total distribution	107,000,000

PRINCE EDWARD ISLAND.

KELLY'S POND HATCHERY.

	Speckled Trout.	Atlantic Salmon.
Main river—		
Winter river		67,500
Cox's brook	20,000	
West's stream	20,000	
Hardy's stream	82,250	
Brackley Point road	14,225	
Midgell river		67,500
East river—		
Sherry's stream	40,000	67,500
McGuirk's stream	16,750	
West river—		
Hyde's brook	40,000	67,500
Morrell river—		
Fisher's brook	50,000	60,000
McCullough brook		60,000
North river—		
McNeil's stream	25,000	30,000
Crabbe's brook		35,500
Curtis brook	20,000	30,000
McKenna stream—		
Redmond's brook	34,100	
Belle river—		
Hancock's stream	12,000	40,000
Hunter river—		
Hazelgrove brook	10,000	40,000
Black river—		
Taylor's brook	14,225	
	398,550	565,500
Total distribution	964,050	

CHARLOTTETOWN HATCHERY.

	Lobsters.
St. Peter island, West bar	10,000,000
St. Peter island, East bar	7,000,000
Canoe Cove	2,000,000
Governor's island	10,000,000
Point Prim reef	8,000,000
Point Prim, East bar	2,000,000
Keppock reef	8,000,000
Pinette	6,000,000
Point Prim	2,000,000
Seal Rock	11,000,000
Crown Point	2,000,000
Total distribution	68,000,000

GEORGETOWN HATCHERY.

	Lobsters.
Murray Harbour	6,000,000
Annandale Bay	6,000,000
Launching Bay	5,000,000
Between Panmure Island and Murray Harbour	5,000,000
Montague River	5,000,000
Outside Boughton Island	5,000,000
Cardigan Bay	6,000,000
St. Mary's Bay	5,000,000
Total distribution	43,000,000

QUEBEC.

TADOUSSAC HATCHERY.

	Atlantic Salmon Fry.	Speckled Trout Fry.	Ouananiche Fry.
Anse St. Jean river	300,000		
Mars river	300,000		
Malbaie river	300,000		
Lac du Juge	125,000		
Baude river	200,000		
Petit Saguenay river	211,000		
Rond lake	80,873		
Tadousac Lake	150 000	20,000	
Bergeronnes river		8,000	
Boulanger lake		4,000	
Sapin lake		4,000	
Chisholm lake		2,000	
Brisson lake		2,000	
Philias lake		2,000	
Dufour lake		2,000	2,000
Gravel lake Chicoutimi		2,000	
Leon St. Alexander lake		1,000	
Hatchery lake		20,000	
Lock brook		10,000	
Metabetchouan river			20,000
	1,666,873	77,000	22,000

Total distribution.....1,765,873

BERGERONNES HATCHERY.

(Subsidiary to Tadousac Hatchery).

	Atlantic Salmon Fry.
Long lake	300,000
Gobeil lake	300,000
Boulanger lake	100,000
Trout lake	100,000
Caribou lake	100,000
Guillaume lake	50,000
Creche lake	50,000
	1,000,000
Total distribution	1,000,000

STE. MARGUERITE HATCHERY.

(Subsidiary to Tadoussac Hatchery).

	Atlantic Salmon Fry.
Portage river	600,000

GASPE HATCHERY.

	Speckled Trout Fry.	Atlantic Salmon Fry.
St. John river	30,000	650,000
York river	30,000	667,000
Dartmouth river	15,000	
First lake	15,000	
Third lake	12,000	
Fourth lake	15,000	
Malbaie river		25,000
Grand river		80,000
Grand Pabos river		89,000
Port Daniel river		40,000
Little Cascapedia river		80,000
	117,000	1,622,000
Total distribution		1,739,000

DARTMOUTH HATCHERY.

(*Subsidiary to Gaspe Hatchery.*)	Atlantic Salmon Fry.
Dartmouth river	720,000

PORT DANIEL HATCHERY.

	Lobsters.
St. Godfroi to Shigawake	5,000,000
Port Daniel, west to east	3,000,000
Newport to point Macron	6,000,000
St. Godfroi	2,500,000
Near hatchery	2,160,000
Total distribution	18,660,000

HOUSE HARBOUR HATCHERY.

	Lobsters.
Sandy beach	2,000,000
Cranberry Head	4,000,000
Wolf island	8,000,000
Red Point	9,000,000
Narrows	12,000,000
Fletcher's Cove	5,000,000
Cape Vere	7,000,000
Red Cape	6,000,000
Little Harbour	5,000,000
Total distribution	58,000,000

ONTARIO.

SANDWICH HATCHERY.

	Whitefish.
Lake Erie—	
Barr point	15,000,000
Pigeon bay	20,000,000
Lake St. Clair—	
Mitchell's bay	3,000,000
Detroit River—	
Bois Blanc Island	21,000,000
At hatchery	4,000,000
Total distribution	63,000,000

SARNIA HATCHERY.

	Herring.	Whitefish.	Pickerel.
Lake Erie—			
Bois Blanc island	11,500,000	3,500,000	
Lake Huron—			
Along lake shore, twelve to thirty miles from hatchery	12,000,000	13,000,000	
Spawning grounds, eight to twenty miles from hatchery			27,000,000
Port Frank, Aux Sables river			5,000,000
	23,500,000	16,500,000	32,000,000
Total distribution			72,000,000

COLLINGWOOD HATCHERY.

	Whitefish.	Pickerel.	Herring.
Georgian Bay—			
Dows bay	3,812,340	10,000,000	
Three Mile point	3,812,340		
Six Mile point	7,712,320		
Finy island	4,163,000		
Nottawasaga river		5,000,000	
Severn river		10,000,000	
Nottawasaga bay		3,000,000	3,000,000
	19,500,000	28,000,000	3,000,000

Total distribution 50,500,000

THURLOW HATCHERY.

	Whitefish.	Salmon Trout.
Lake Ontario—		
Bay of Quinte	59,000,000	
Nicholson's island		1,700,000
Eastern Gap		3,147,000
Brighton		1,840,000
	59,000,000	6,687,000

Total distribution..... 65,687,000

WIARTON HATCHERY.

	Salmon Trout Fry.	Salmon Trout Fingerlings.
Lake Huron—		
Providence bay	500,000	
South bay	500,000	
Rattlesnake harbour	450,000	
Tobermory	400,000	
Georgian Bay—		
Jackson's shoal	500,000	
Presqu' Ile	500,000	
Meaford	500,000	
Vails point	400,000	
Ontario Government	500,000	
Cameron's point	400,000	
White Cloud Island	400,000	
Hay island	400,000	
Four Mile point	400,000	
Griffith island	400,000	
Gravelly point	400,000	
Cape Croker	400,000	
Pruder's landing	400,000	
Pound-net ground	700,000	
Wiarton bay	670,200	
Colpoy's bay		128,156
	8,820,200	128,156

Total distribution 8,948,356

PORT ARTHUR HATCHERY.

	Whitefish.	Herring.	Salmon Trout Fry.	Salmon Trout Fingerlings.
Black bay	2,000,000			
Blend river	4,000,000			
Caribou island	2,000,000			
Amethyst harbour	2,000,000			
McKenzie river	2,000,000			
Mary island	2,000,000		400,000	
Papoose island	2,000,000			
Wild Goose point	2,000,000			
Vicinity of hatchery	1,790,000	13,085,000	551,000	800,000
Rossport and Jackfish			400,000	
Point Magnet			400,000	
Pie island			1,200,000	
Thunder cape			800,000	
Silver island			400,000	
Carp river			400,000	
Mink island			400,000	
Welcome island			400,000	
Welcome island shoal			800,000	
Hare island			400,000	
Tee harbour			400,000	
Edwards island			400,000	
Walkers channel			400,000	
Barepoint			800,000	
	19,790,000	13,085,000	8,551,000	800,000

Total distribution 42,226,000

SOUTHAMPTON HATCHERY.

	Salmon trout.
Lake Huron—	
Chief point	2,828,250
Main station	1,150,000
Black point	600,000
Nine-Mile point	900,000
Kincardine	478,250
Stokes bay	478,250
	6,434,750

Total distribution 6,434,750

KENORA HATCHERY.

	Whitefish.	Pickerel.
Henies Point	15,000,000	
Whitefish bay	15,000,000	23,000,000
Bishops bay	15,000,000	
Shoal lake	15,000,000	10,000,000
Bay at hatchery	498,000	833,200
Poplar bay		10,000,000
Channel island		10,000,000
Fraser island		15,000,000
	60,498,000	68,833,200

Total distribution 129,331,200

MANITOBA.

SELKIRK HATCHERY.

	Whitefish.
Red River at Selkirk	35,000,000

GULL HARBOUR HATCHERY.

	Whitefish.	Pickerel.
Lake Winnipeg at hatchery	50,000,000	14,932,000
Pelican lake		224,000
Killarney lake		260,000
Max lake		80,000
Louise lake		4,000
Lake Winnipeg, mouth of Red river		500,000
	50,000,000	16,000,000
Total distribution		66,000,000

DAUPHIN RIVER HATCHERY.

	Whitefish.
Dauphin river	80,000,000

WINNIPEGOSIS HATCHERY.

	Whitefish.
Lake Winnipegosis, near Snake island	85,000,000

SASKATCHEWAN.

FORT QU APPELLE HATCHERY.

	Whitefish.
Lebret lake	3,000,000
Long lake	5,000,000
Ketepwa lake	3,000,000
Sioux lake	2,000,000
Upper Fishing lake	2,920,000
Total distribution	15,920,000

ALBERTA.

BANFF HATCHERY.

	Herring Fry.	Salmon Trout Fry.	Salmon Trout Fingerlings.
Johnstone lake	600,000		
Minnewanka lake	3,570,500	446,000	100,000
	4,170,500	446,000	100,000
Total distribution			4,716,500

BRITISH COLUMBIA.

Fraser River Watershed.

HARRISON LAKE HATCHERY.

Sockeye Salmon Fry.	Coho Salmon Fry.	Spring Salmon Eggs.	Humpback Salmon Eggs.
38,040,000	1,164,000	2,540,000	3,549,000

Total distribution 45,293,000

All the fry were liberated in the creeks and along the shores of lakes Harrison and Cultus.

PEMBERTON HATCHERY.

	Sockeye.
Birkenhead River	22,892,000
Total distribution	22,892,000

In addition to the above, 1,000,000 sockeye eyed eggs were shipped to the provincial hatchery at Seaton lake, B. C.

STUART LAKE HATCHERY.

	Sockeye Fry.	Sockeye Eggs.
Stuart lake, Cunningham creek	2,840,000	
* Babine lake, 15-Mile creek		2,242,000

Total distribution 5,082,000

* Eyed eggs.

SKEENA RIVER WATERSHED.

SKEENA RIVER HATCHERY.

	Sockeye.
Lakelse lake	3,413,317
Schallabuchan creek	700,000
Total distribution	4,113,317

BABINE LAKE HATCHERY.

	Sockeye.
Babine lake, Salmon river	7,088,940

RIVERS INLET HATCHERY.

	Sockeye Fry.	Sockeye Eyed Eggs.
Owekano lake, hatchery ponds	8,191,300	
Quarp creek	2,500,000	
Genessi creek	1,302,800	
Namu hatchery		500,000
East Bella Bella		100,000
	11,994,100	600,000

Total distribution 12,594,100

QUEENS PARK HATCHERY.

	Cohoe.	Sockeye.	White-fish.	Humpback.	Speckled trout.
Salmon river	270,000	72,000			
Pitt lake	50,000	50,000			
Pitt river	70,000				
Dawson creek	20,000	.....	10,000		
Allan creek	25,000				
Keanacka creek	28,000				
McKay creek	15,000				
Silver creek	10,900	20,600	.....	145,000	
Kawkowa creek	.....	25,000			
Ruby creek	.....	20,000			
Hastings park		200			200
Gilley creek	.....	.....	.....	140,000	
Stave lake					5,000
Cowichan lake hatchery					14,000
Todds Inlet					6,000
Shawnigan lake					4,000
Lake Coma					26,000
Paul lake	.....	.....	.....	.....	5,000
Reices creek					14,800
Errock lake	.....	.....	15,000		
	488,000	187,800	25,000	285,000	75,000

Total distribution 1,060,800

In addition to above, the following eggs in an eyed condition were shipped :

	Cohoe.	White-fish.	Salmon trout.
Vancouver	40,000	.....	.....
Hastings Park	.....	50,000	15,000

VANCOUVER ISLAND.

ANDERSON LAKE HATCHERY.

	Sockeye.	Cohoe.
Anderson lake—		
Clemens creek	3,920,000	
Ternan creek	158,000	197,726
	4,078,000	197,726

Total distribution 4,275,726

KENNEDY LAKE HATCHERY.

	Sockeye.
Kennedy lake—	
Irvine creek	555,415
Shelter bay	1,031,485
Beach at head of lake	796,340
Beach opposite hatchery	634,760
Hatchery pond	870,000
Total distribution	3,888,000

GERRARD HATCHERY.

	Speckled Trout fry.	Kokanee Trout fry.	Kamloops Trout fingerlings.	Kamloops Trout Fry.
Big Sheep creek	142,000	129,975		
Meadow creek	40,000			
Lake near Crawford bay	10,000			
Blueberry creek	20,000			
Lardo river	3,050	50,000	2,278	50,000
Pass creek	20,000			
Beaver creek	30,000			
Inonoklin river	30,000			
Goat river	30,000			
	325,050	179,975	2,278	50,000

Total distribution 557,303

COWICHAN LAKE HATCHERY.

	Spr'ng Salmon.	Lake Trout.	Cohoe Salmon.	Brook Trout.	Atlantic Salmon.	Steelheads.	Cutthroat Trout.
Sutton creek	83,000				56,000		12,000
Olivers creek	9,000	2,872		11,000	19,300	10,000	8,600
Robinson river	236,500				22,000		
Bear Lake creek	26,000						
Beaver creek	178,400				26,000	16,000	
Hatchery pond	15,500			3,000	5,000	5,000	5,000
Green creek	28,000				7,000		
Bonsall creek			246,000				
Chemainus river			128,000				
Tyee creek			385,000				
Senora creek			120,000				
Kelvin creek			140,000				
Shawnigan lake			120,000				
Powell creek			233,100				
Farlton creek			120,000				
Beadnell creek					8,000	7,600	
Nixon creek					18,000		18,000
Shaw creek					22,000		10,000
Cowichan river		2,000					
	576,400	4,872	1,492,100	14,000	183,300	38,600	53,600

Total distribution 2,362,872

NIMPKISH HATCHERY.

(Operated by British Columbia Packers' Association)

	Sockeye.
Nimpkish lake	4,980,000

APPENDIX 17.

IMPORTS AND EXPORTS OF FISH.

IMPORTS.

STATEMENT showing the Quantities of the chief Commercial Fish and Fish Products imported into Canada, for Home Consumption, during the fiscal year 1915-16.

(From report of Customs Department.)

—		Dutiable.	Free from Newfoundland.	
Cod, haddock, hake and pollock (fresh)	Lb.	29,393	Lb.	140,255
" " (dried)	"	124,550	Cwt	265,523
" " (smoked)	"	177		
" " (green salted)	"	200		
" " (pickled)	"	500	"	186
Halibut (fresh)	"	772,069	Lb.	132,030
Herring "	"	11,727	"	90,472
" (pickled)	"	1,228,482	"	14,109,354
" (smoked)	"	921	"	83,005
Mackerel (fresh)	"	2,444		
" (pickled)	"	2,603	"	3,200
Salmon (fresh)	"	44,870	"	224,299
" (smoked)	"	11,615	"	320
" (canned)	"	*	"	3,458
" (pickled)	"	9,393	"	657,820
Bait fish	"		Brl.	80
Lobsters (canned)	"	496	Lbs.	135,782
Oysters (fresh in shell)	Brl.	3,025		
" (shelled, in bulk)	Gal.	207,310		
" (canned, one pint and under)	Can.	222,722		
" (one quart and under)	"	4,701		
" " over one quart)	Qt.	2,065		
" (preserved)	Lb.	17,285		
Fish oil, cod	Gal.	2,419	Gal.	99,421
" " " liver	"	11,969		
Seal "	"		"	43,326
Whale, oil and spermaceti	"	52,374		
Other "	"	61,222		

* No quantity shown value $660 00.

The value of the imports of fish and fish products for the year 1915-16, amounted to dutiable... $895,371
free..... 695,702

$1,591,073

EXPORTS.

STATEMENT showing the Quantities of the Chief Commercial Fish and Fish Products (the Produce of Canada) Exported during the fiscal year 1915-16.

—From Report of Customs Department.

Country of Destination.	Cod, including Haddock, Hake and Pollock.				Herring.				Mackerel.		Lobsters.	
	Fresh.	Dry.	Green Salted.	Pickled.	Fresh.	Pickled.	Smoked.	Canned.	Fresh.	Pickled.	Fresh.	Canned.
	cwt.	cwt.	cwt.	cwt.	cwt.	brl.	cwt.	cwt.	cwt.	brl.	cwt.	lb.
United Kingdom		33,716	7,028				647	465		7		3,662,148
United States	25,749	263,472	85,935	32,381	312,293	74,403	23,394	730	45,836	25,612	62,783	1,920,601
British West Indies		114,776				27,357	3,347	738		5,765		1,224
Bermuda		4,073				67	302	187		97		1,760
British Guiana		31,970				2,253	140			896		1,272
British Honduras												
Malta												
Newfoundland		9,476	1,648			57	144					600
Azores		100										
Brazil		126,394										
Costa-Rica		1,541				19	1			115		
Cuba		96,385		1			335			11		
Danish West Indies		377				183	62			11		
Dutch Guiana		7,210					98	7				1,040
Siam												
French West Indies		7,601					70					
Guatemala												
Hawaii		448				100						
Hayti												
Italy		58,056										
Miquelon and St. Pierre						6	46					
Nicaragua		9				164						
Panama		14,189					206			997		
Porto Rico		90,856				4,847	841	5		92		3,920
Portugal		6,568										
San Domingo		351										
Spain		736	12									
United States of Colombia		1,225								39		
Venezuela		260										
Australia		5			7		10	5,938				8,338
Hong Kong		92				22,863	7					
China						8,744						

Fiji								29				
British Straits Settlements												
Norway												18,258
Alaska		1	1		374							
Japan		1				52,859						
Sweden												70,730
Chili												
France		629				100						2,471,600
New Zealand								2,174				1,872
British Oceania, other than above								96				
Belgium												
Denmark		1				2						159,640
Germany												
Holland		16										
Mexico			9									
Russia-in-Europe												
British South Africa												
British India												
Dutch East Indies												
Ecuador												
French Oceania												
Philippines												
Dutch West Indies												
Uruguay		5										
Korea												4,800
Argentina		5										12,100
French Guiana		29					9					
Totals	25,749	864,573	94,633	32,382	312,674	201,024	29,659	10,369	45,836	33,642	62,783	8,339,903

EXPORTS—*Concluded.*

STATEMENT showing the Quantities of the Chief Commercial Fish and Fish Products (the Produce of Canada) Exported during the fiscal year 1915-16.

—From Report of Customs Department.

Country of Destination.	Salmon.					Halibut.	Smelts.	Oysters.	Bait Fish and Clams.	Oil.		
	Fresh.	Canned.	Smoked.	Pickled.	Dog-Salmon.	Fresh.	Fresh.	Fresh.		Cod.	Seal.	Whale.
	cwt.	cwt.	cwt.	brl.	cwt.	cwt.	cwt.	brl.	brl.	gal.	gal.	gal.
United Kingdom	14,96	352,251		793		16,277	20	13		4,880	3,570	
United States	31,277	187	27	5,765	205,456	58,591	57,971	308	8,028	514,352	4,977	319,076
British West Indies		286		576				1		1,121		
Bermuda		115		26				4				
British Guiana				139						25		
British Honduras												
Malta												
Newfoundland				1		104		2	1,787	8,372		
Azores												
Brazil												
Costa-Rica				15								
Cuba												
Danish West Indies				14								
Dutch Guiana				292								
Siam		145										
French West Indies												
Guatemala												
Hawaii												
Hayti												
Italy												
Miquelon and St. Pierre		24					1	15	10			
Nicaragua												
Panama				210								
Porto Rico												
Portugal												
San Domingo												
Spain												
United States of Colombia												
Venezuela												
Australia	63	47,891				5						
Hong Kong	11	182	1	102			22					
China		120										

Fiji		9,287										
British Straits Settlements		20,647										
Norway												
Alaska	2			7								
Japan				5,726								
Sweden												
Chili												
France	101	39,055										
New Zealand	30	13,381				20						
British Oceania, other than above		911										
Belgium												
Denmark										4,032		
Germany												
Holland												
Mexico												
Russia-in-Europe												
British South Africa		528										
British India		2,982										
Dutch East Indies		3,436										
Ecuador												
French Oceania												
Philippines												
Dutch West Indies												
Uruguay												
Korea												
Argentina												
French Guiana				8								
Totals	46,444	491,428	28	13,704	205,456	74,997	58,014	344	9,825	532,782	8,547	319,076

The value of Fish and Fish Products (the Produce of Canada) exported during the year 1915-16, amounted to $22,377,977.

APPENDIX 18.

INSPECTION OF PICKLED FISH AND FISH CANNERIES.

REPORT ON THE INTRODUCTION AND OPERATION OF THE FISH INSPECTION ACT DURING 1915.

To the Deputy Minister of the Naval Service.

SIR,—Having been honoured with the responsibility of carrying out the provisions of the Fish Inspection Act, I beg to submit a report on the steps taken for its introduction and operation, and the results achieved during the first season.

In the fall of 1914 copies of the Act and the regulations made by virtue thereof were distributed to fishermen, packers, coopers, and dealers on all parts of the coast. These regulations are in the form of detailed instructions for the guidance of inspecting officers, coopers, and packers as to the construction and capacity of barrels, the quality and thickness of the staves and heading, and the manner in which the barrels should be hooped; also as to the quality, grading, and curing of the fish

From the middle of October to the middle of December, 1914, and from the middle of February to the middle of April, 1915, and again during December, 1915, in accordance with your instructions I held public meetings of an educational nature in the Maritime Provinces at which the objects and requirements of the Act were made clear to fishermen and all concerned.

In all, over 100 regular meetings were held, in addition to many personal interviews, covering the Atlantic coast from Gaspé in the gulf of St. Lawrence to Grand Manan in the Bay of Fundy.

The average attendance at the meetings was from fifty to sixty. At one place there were 450 present. The attendance varied in accordance with the condition of the weather and roads.

At each meeting the Act and the working of its regulations were clearly and comprehensively defined and explained. Questions of a technical nature were freely asked and answered after the address in every case, and I may add that high appreciation of the department's efforts and of the objects of the Act was invariably expressed at the meetings.

As the Act does not compel any one to submit his fish for inspection, no definite idea could be formed beforehand as to the extent to which its provisions would be made use of during the first year, notwithstanding its favourable reception by the trade. In order therefore, to guard against the possibility of having too many inspecting officers with nothing to do at the beginning, the smallest staff possible for dealing with work was appointed.

The Atlantic coast was therefore divided into the following districts, and an inspecting officer appointed in each, with the exception of the last: (1) Cape Breton island; (2) the south shore of Nova Scotia from Antigonish to Yarmouth; (3) Digby Annapolis, and Kings counties, in Nova Scotia; Westmorland, Albert, St. John, and Charlotte counties in New Brunswick; (4) the Magdalen islands, Prince Edward Island, and Colchester, Pictou, and Cumberland counties in Nova Scotia; (5) Kent, Northumberland, Gloucester, and Restigouche counties in New Brunswick; (6) the Gaspé peninsula and the north shore of the gulf of St. Lawrence.

Owing to the difficulty of finding a competent man to act in district No. 6, and the fact that the fishermen there devote their time chiefly to cod fishing, no appointment has yet been made. The officer for district No. 5, who is able to speak French, was held available to attend to any inspection work that might have arisen in district No. 6.

Some of the districts assigned to the inspection officers cover several counties and are seemingly too large, but as a matter of fact in many of the counties fishing for such fish as come under the inspection scheme is of very little importance as yet.

Early in May, 1915, I called the newly appointed inspectors together at St. John, N.B., and instructed them with respect to their duties, emphasizing the missionary and educational aspect of these, and discussing with them and explaining to them the Act and the regulations, clause by clause.

The Act came into effect in May, 1915, and by means of the department's Monthly Statistical Bulletin, May and June issues, which is freely distributed to those engaged in the industry, fishermen and packers were briefly reminded of what steps they should take in the event of their deciding to pack their fish for inspection; also they were notified of the name and address of the inspecting officer in whose district they operate, and to whom they would have to apply for inspection and the brand. In addition to this, the fishery overseers of the department were instructed to disseminate this information while going over their respective districts on other fisheries business.

In the course of the summer each inspecting officer was reminded by letter that much educational work remained to be accomplished amongst fishermen and packers in order to overcome their lack of appreciation of the possibilities of enhancing the value of their product by a free use of the government brand, and was again urged to actively engage in this educational work and to induce packers to submit at least part of their fish for inspection in order to get the brand introduced.

The number of barrels presented for inspection during the first fishing season in which the Act became operative was 1,328. Of these, 1,211 were branded and 117 rejected.

The districts in which inspection took place, and the kinds of fish presented for inspection were as follows: St. John, N.B., district (No. 3), 899 barrels of alewives presented, all branded. Caraquet, N.B., district (No. 5) 261 barrels of alewives presented, 259 branded and 2 rejected; 58 barrels of herring presented, 43 branded and 15 rejected, the latter for not being packed in standard barrels.

Fishermen in the Caraquet district failed to make provision beforehand for getting standard barrels, and could not procure them when the fish came, otherwise most of the herring catch would have been packed for inspection.

Prince Edward Island district (No. 4) 100 barrels presented; all rejected for not being sufficiently cleaned and graded.

Halifax, N.S., district (No. 2) 10 barrels of mackerel presented and branded.

At the Magdalen Islands several thousand barrels of mackerel were packed for the brand under the inspecting officer's instructions, but owing to the extraordinary demand for salt mackerel last season, caused by the shortage in the Norwegian catch, they were sold and shipped to the United States before the inspector could return to inspect and brand them.

The total number of barrels presented for inspection so far may not appear large, but it must not be forgotten that the scheme was entirely new in its application, that packing for the brand is purely a voluntary matter on the part of the packer, that the standard herring barrel required by the Act costs him nearly double that of the old style of barrel, and that he had no definite assurance of receiving that much more for his product.

Until buyers of pickled fish in the United States, the West Indies, and in Canada, come to recognize the value of the government brand as a guarantee of quality, progress will be slow indeed. Realizing this, the department directed the attention of all pickled fish buyers to the aims and objects of the inspection scheme, and asked for their co-operation in the work of improving the quality of the cured product to the extent of preferring branded to unbranded fish when making their purchases.

It will be some time, of course, before the results of this indirect action become very marked, but in order to show something of the interest that buyers are taking in the department's efforts, the following extracts from letters received may be quoted:—

A wholesale dealer in Boston, Mass., says: "I wish to assure you at the outset that any effort to encourage the use of a better package and better grading of cured fish will receive from me all the encouragement it is possible for me to give. My long experience in handling the Dominion product has taught me the necessity of some move of this sort that would look to the improved cure, culling, and packing of the Canadian pickled fish; so it was with great satisfaction that I learned that your department had taken the matter up and had provided for the inspection and branding of such fish.

"I shall be glad to co-operate in advertising to our customers the change that is coming in the packing and package of the Dominion product, but perhaps one word of caution may not come amiss from me.

"The party who will pay more for the inspected fish is not the receiver here, nor the dealer here, nor the dealer's customer, but it will be the consumer, and he will stand ready to pay more for the product because of the improved quality of the product which the packing and the package, we know, will surely bring as a result.

"The benefits of a movement of this kind cannot be judged by the result for one year or for two years. The improvement in demand and price will not be immediate, or at least will not be so markedly immediate as to cause any decided change or noticeable improvement, but after a year or two your fishermen will find that their product will rank up along with the best product of the best fishers because of the improved care in the cure, selection, and package.

"I sincerely hope that a year or two's experience will be so satisfactory as to indicate to your Government the necessity of making such inspection compulsory."

A wholesale dealer in New York says:

"We think that if all packers follow this Act and put up their fish carefully inspected and in packages such as you propose to have it will be the best thing that could possibly happen.

"We assure you we are doing all we possibly can with our shippers to get them to conform with the law."

Another wholesale dealer in New York says:—

"We shall certainly avail ourselves of the inspection you mention, and we believe that this should be a very good thing for the interests of the entire fish trade, and we certainly will lend you any assistance that we possibly can to the carrying out of what we believe to be an excellent measure."

A wholesale dealer in Barbados says:—

"We shall take pleasure in carrying out your wishes and will impress on shippers the benefit of having their shipments of pickled fish inspected before shipment."

A merchant in Port of Spain, Trinidad, says:—

"I am very much obliged to you for bringing to my attention the fact that it will now be possible to purchase pickled fish that has been inspected and branded by the Government, and I will endeavour on all occasions to secure fish that has been inspected. It will take a little time for the trade to realize what this means, but on their grasping the fact that they will be getting a uniform fish put up in a proper package, I have no doubt that the demand for inspected fish will greatly increase.

"Permit me, as one who is greatly interested in the promotion of Canadian West Indian trade to congratulate the department on this very wise step that has been taken."

A wholesale dealer in Toronto says:—

"You may rest assured that we will be pleased to take advantage of this inspection, and will see to it that any fish that we purchase are inspected."

With the interest thus manifested by the purchasers of the cured product it is confidently expected that during the season of 1916 there will be a greatly increased number of barrels of pickled fish presented for inspection and the brand.

Before the outbreak of the great European war the importation of pickled herring to the United States from Great Britain alone amounted annually to approximately 130,000 barrels, and from Norway and Holland to probably as many more, for which high prices were always obtainable.

Notwithstanding an abundance of herring in the waters of Canada and the nearness of Canada to the United States, Canadian packers up till the outbreak of war, had not been able to secure a share of this particular trade.

Their style of curing, together with the type of barrel used, were suited only for the very lowest-priced markets known for salted herring.

The fish being chiefly marketed in the West Indies were split and heavily salted to prevent them from going bad in the heat of the tropics. That method of curing was applied also to herring intended for consumption in the United States and home markets, with the result that the fish have not been greatly esteemed therein.

In order to secure a place in the high-priced American market it is absolutely necessary that the fish be cured and packed in accordance with the desires of the consumer, i.e., in the European method, commonly called the Scotch method.

Consumers of these fish are extremely hard to please, and in ordinary years buyers of Scotch-cured herring in the United States were not inclined to handle the Canadian produce, cured in that way, because they realized that both quantity and quality of pack were very uncertain, whereas supplies cured and packed exactly as the trade desired could be secured in Great Britain and Holland with the least possible trouble and with certainty as to quantities.

When it became apparent, however, that war conditions in the North sea would cut off supplies from Europe to the United States, during 1915, a pamphlet setting forth the trade situation and urging Canadian packers to endeavour to make up this deficiency by curing their herring in the Scotch style, was distributed amongst the fish trade. A complete description of this style of curing forms an appendix to the Fish Inspection Regulations, copies of which were already in the hands of all concerned.

Half a dozen Nova Scotia fish dealers were induced to enter this business during the season of 1915.

From five to six thousand barrels were cured in this way, most of which sold at from 100 per cent to 150 per cent more per barrel than was ever before obtained for Nova Scotia herring.

A small proportion of the pack was not of the requisite quality, and was not cured in strict accordance with the department's regulations and advice. These were difficult to dispose of.

With the lesson of 1915 before them, and as similar conditions will obtain next season, dealers in the Maritime Provinces are preparing to participate in this business on an enlarged scale during the summer of 1916.

While this is all well and good for the present, it has been kept in mind that when conditions return to normal in Europe there will confront us the possibility of the old prejudice against Canadian herring being revived in the United States unless extreme care be taken to ensure that the fish are packed in barrels of the proper type, and cured exactly as this very fastidious trade wants them.

In the Fish Inspection Act we have a splendid means of safeguarding this business, and if the trade is wise enough to take advantage of its provisions we may be able to hold part of this American market after the war.

Steps have been taken to guide and instruct both coopers and packers in the methods laid down in the Act. A trained Scottish cooper and curer has been equipped with tools by the department, and is visiting cooper shops in the Maritime Provinces, especially those where barrels of the Scottish pattern are being made, spending a few days in each and making sample barrels in the presence of the cooper. This part of the business is as important as the curing of the fish.

During the curing season he will act as an instructor, giving his attention chiefly to places where curing in the Scottish style is going on. He will also inspect and brand the cured fish.

I shall, of course, be on the coast most of the summer myself and take an active part in the work.

A pickled-fish inspector has not yet been appointed for British Columbia. Conditions there are different from those on the Atlantic coast. Neither mackerel nor alewives are found in British Columbia waters. So far as herring are concerned there is a goodly number of experienced coopers and curers from the old country resident on the Pacific coast, and fish merchants desirous of engaging in the business can secure the necessary trained assistance right in the province.

Herring cured under such conditions are usually looked upon as not requiring inspection and branding, and could not possibly be presented for inspection except under the provisions of a compulsory Act.

Approximately 5,000 barrels of herring were cured in the Scotch style on the Pacific coast. Instruction and advice were given to the packers through the means of pamphlets, etc.

The situation in the Pacific province is being closely watched, and if the need for inspection and branding arises in the course of the next season it will be duly met through the means at present available.

I have the honour to be, sir,
Your obedient servant,

J. J. COWIE,
General Inspector.

INSPECTION OF FISH CANNERIES.

To the Deputy Minister
of the Naval Service.

SIR,—During the season of 1915-16, as in the preceding year, a systematic inspection of all establishments in which fish and shell-fish are canned was maintained, under authority of the Meat and Canned Foods Act.

The inspections were carried out by the department's fishery overseers on the Atlantic coast, and by three specially appointed inspectors on the Pacific coast.

All that this Act requires, so far as fish are concerned, is covered by the following clauses:—

"12. All articles prepared for food in any establishment and packed in cans or similar receptacles, or in any package whatever, shall be subject to inspection during the whole course of preparation and packing; and all such packages shall be marked with:—

(*a*) the initials of the Christian names, the full surname, and the address, or, in the case of a firm or corporation, the firm or corporate name and address, of the packer or of the first dealer obtaining them direct from the packer, who sells or offers the said articles for sale; and such dealer shall, upon the request of an inspector appointed under this Act, disclose the name of the packer of such article;

(*b*) a true and correct description of the contents of the package:

Provided, however, that if it be established to the satisfaction of the Governor in Council that such marking would hinder the sale of any said articles in foreign markets or in the markets of the United Kingdom, he may exempt such articles from the provisions of this section.

13. All fish, fruit, or vegetables used in any establishment where these articles are prepared for export, shall be sound, wholesome, and fit for food; and any such articles or products thereof in the said establishment unsound or unwholesome shall be confiscated and destroyed as provided by the regulations.

14. An inspection and close supervision of the sanitary conditions of all establishments shall be maintained, and they shall be conducted under such conditions, sanitary and otherwise, as may be prescribed by the regulations."

The information before the department indicated that the labelling of such canned fish as lobsters and salmon intended for the export trade would seriously interfere with their sale owing to the fact that the wholesale dealers in Europe desired the product to be shipped unlabelled.

Authority of Council was, therefore, obtained as provided for in section 12 of the Act to exempt canners from compliance with the requirements of the labelling clauses.

The duties of the inspecting officers were thus confined to supervising the sanitary conditions of each establishment and the utensils used therein; the cleanliness of the employees; and the manner in which the product is handled, and the condition of the fish previous to canning.

There were in operation on both coasts during the season, 636 canneries in which were canned lobsters, sardines, herring, haddock, mackerel and clams.

On these, 1,193 reports were received and dealt with; the result of which brought about the correction of a number of minor defects in buildings and utensils.

Speaking generally, a high standard of excellence in packing is maintained in all our canneries, especially in salmon and lobster canneries, and the output of the year under review proved no exception to the rule.

I have the honour to be, sir,
Your obedient servant,

J. J. COWIE,
General Inspector.

SESSIONAL PAPER No. 39

APPENDIX 19.

REPORT ON BIOLOGICAL STATIONS, SEASON 1915.

To the Deputy Minister of the Naval Service,
Ottawa.

SIR,—The fishery investigations carried on at the biological stations at St. Andrews, N.B., and Departure Bay, Vancouver island, British Columbia, were of exceptional importance, and the staff included a number of distinguished specialists from the following Universities: McGill, Toronto, New Brunswick, Queen's (Kingston), and Acadia (Nova Scotia).

Prof. A. B. Macallum, Secretary-treasurer of the Biological Board, superintended the operations during the first part of the season, and Prof. J. Playfair McMurrich took over the duties when Dr. Macallum left.

The bacteriology of fresh and cured fish, with a view to determining the conditions under which the food fishes deteriorate when shipped to the buyers, formed an important line of research in 1915.

Miss Gair Patterson (now Dr. Patterson), of Toronto University, conducted an elaborate series of fish-curing experiments during the whole summer, putting up a quantity of cured fish, chiefly finnan haddies, with Mr. Cross and Mr. Arthur Calder assisting in the practical processes in the curing and smoking shed. A special smoke-house was fitted up near the station, and another on Navy island, and numerous samples of the product packed in fish boxes, were submitted to various persons for testing. The opinions received from these parties were tabulated, and are now being incorporated in a final report upon the improvement of cured fish in Canada. The extremely technical studies upon the phenomenon of autolysis and putrefactive activity in finnan haddies, completed by Miss Patterson, have afforded a basis for devising methods by which the best quality of these fish can now be produced for the market.

How to introduce the improved methods into the fish trade generally is a problem for consideration. Most of the samples of smoked haddock shipped from the station were pronounced by those who tested them to be of exceptional excellence. The Honourable the Minister of Naval Service, the Deputy Minister, and many others, expressed their high opinion of the product sent from the biological station.

Dr. Clara C. Benson, Toronto, was engaged upon biochemical studies, chiefly relating to the extractives in cured fish, and to organic fluids in the bodies of various fishes. The blood and the tissues of the lobster and other edible marine animals were included, and upon the results, valuable reports will appear in due course.

Professor Cox, Fredericton, N.B.; Mr. W. H. Chase, Wolfville, N.S.; Mr. E. Horne Craigie, Toronto; and others, completed biological, hydrographical, chemical, and other researches of great interest. Dr. J. B. Collip, Alberta University (Edmonton), made a study of the composition of the ova of the herring.

The Dominion Commissioner of Fisheries (Professor Prince) spent some time at the station, and investigated the variation in the unpaired fins and the number of vertebræ in a quantity of small herring from the sardine weirs, with a view to determining local schools and their migrations; and he continued the test of a new form of fishway, erected at the Magaguadavic falls, St. George.

Prof. A. P. Knight and Prof. W. T. MacClement, with a small staff, made a brief sojourn at the station, but occupied most of the summer in completing their lobster-rearing and mating experiments at Long Beach pond, Nova Scotia. The work was advanced to a much further stage than was possible during the preceding year.

Prof. A. D. Robertson (Western University) devoted himself to further work on the oyster beds of Richmond bay, Prince Edward Island, and gave his attention to several important problems which remain to be solved, besides rendering valuable assistance to Dr. Julius Nelson, the noted oyster authority from New Jersey.

Dr. Nelson willingly placed his great knowledge of oyster culture at the service of the board, and during the summer of 1915 commenced very remarkable researches on Prince Edward Island oysters, besides delivering a number of practical addresses to oyster fishermen at various points. After completing this programme of work and submitting a detailed report to the Biological Board, the melancholy intimation reached the board that he had passed away, and his death is a great loss to fisheries' science.

In accordance with a scheme, which has been under the consideration of the board for several years, Dr. Johan Hjort, the famous herring expert, and director of Norwegian fisheries, came to Canada and in 1914 began a survey of the herring fisheries of the gulf of St. Lawrence. The Department of Naval Service, with the cordial approval of the honourable the minister, made special arrangements for a very complete investigation to be continued during the season of 1915.

The Biological Board arranged that Professor Willey, Montreal; Dr. A. G. Huntsman, Toronto; and Dr. James W. Mavor, Toronto and Madison, Wis., in addition to Dr. Bjerkam, Bergen, and other Norse specialists, should assist Dr. Hjort as a scientific staff. By the courtesy of the Naval Department, the government steamers, *Princess* and *Acadia,* and the steam-herring drifter *No. 33,* were employed in this Atlantic fisheries expedition, and most important observations were completed at a series of stations on the fishing grounds. This series of stations extended across the gulf of St. Lawrence and along the Atlantic coast of the mainland.

Eight separate reports on the various branches of work, included in the expedition, have been almost completed and others have already been forwarded by their authors to Ottawa. The subjects embraced are the growth and migration of the herring, cod, haddock, mackerel, and other Canadian fishes, and these are now in the course of publication.

This series of illustrated memoirs, prefaced by Dr. Hjort's summary and detailed conclusions, will form the most extensive and valuable report on the herring industry, the cod and subordinate fisheries, yet issued in Canada, and, in some respects, the most valuable fisheries publication issued on this continent. A number of questions of vital moment to the fisheries are for the first time adequately dealt with, but many problems remain not fully solved, which Dr. Hjort has handed to the Biological Board to complete, and to report upon later.

The Pacific station near Nanaimo, B.C., has not relaxed its activity, although the staff, owing to the war and other conditions, was smaller than usual. Dr. McLean Fraser has been indefatigable and has completed voluminous reports on the spawning

of the rock cod and other species, also on British Columbia hydroids and other invertebrates of importance as food for fishes. Important salmon researches (including the spring, or quinnat, coho, sockeye, etc.) were completed within certain limits, and illustrated reports are in course of publication.

Professor Cameron's paper on British Columbia kelp beds, as a source of iodine, potash, and other valuable chemical products, has attracted wide public attention.

The alleged injury to the salmon industry by sea-lions has formed the subject of inquiry by a special committee, selected by the board. Dr. McLean Fraser, Dr. F. C. Newcombe, and Mr. Hamar Greenwood constituted this committee and visited the rookeries, collecting evidence, and have completed a preliminary report, which has been submitted, but the work is to be continued in 1916.

Many of the researches carried on in 1915 have been regarded as of such urgent public importance, that notices of the results have already been included in publications by the Commission of Conservation, the American Fisheries Society, the Canadian Institute, etc.

I am, sir,
Your obedient servant,

EDWARD E. PRINCE,
Chairman of the Biological Board.

APPENDIX 20.

SPECIAL LOBSTER FISHERY STATISTICS.

STATEMENT showing, by districts and counties, the quantity of lobsters canned and shipped in shell: also the number of canneries and traps used in the industry since the year 1897.

LOBSTERS CANNED AND SHIPPED IN SHELL

BAY OF FUNDY.

Year.	St. John.		Annapolis		Kings.		Total.	
	1 lb. cans.	cwts in shell.	1 lb. cans.	cwts in shell.	1 lb. cans.	cwts in shell.	1 lb. cans.	cwts in shell.
1897		3,800		1,553		20		5,373
1898		6,390		1,535		187		8,112
1899		5,980		1,515				7,495
1900		6,080		1,838				7,918
1901		[1]2,215		895		248		3,358
1902		2,114		1,545		500		4,159
1903		2,310		2,448		641		5,399
1904		1,848		362		810		3,020
1905		[2]2,485		485		760		3,730
1906		[3]1,884		1,560		854		4,298
1907		[4]1,824		6,004		678		8,506
1908		[5]2,068		5,533		679		8,280
1909-10		[6]3,315		7,170		493		10,978
1910-11		[7]1,430		12,985		244		14,659
1911-12		[8]1,690		2,934		219		4,843
1912-13		[9]2,237		1,146		128		3,511
1913-14		[10]2,033		1,824		136		3,993
1914-15		[11]1,703		1,767		196		3,666
1915-16		[12]2,695	480	1,366		262	480	4,323
Totals		54,101	480	54,465		7,055	480	115,621

[1]100 cwts from Albert Co. [2]200 cwts from Albert Co. [3]300 cwts from Albert Co. [4]400 cwts from Albert Co. [5]250 cwts from Albert Co. [6]300 cwts from Albert Co. [7]100 cwts from Albert Co. [8]120 cwts from Albert Co. [9]125 cwts from Albert Co. [10]90 cwts from Albert Co. [11]96 cwts from Albert Co. [12]54 cwts from Albert Co.

Lobsters Canned and Shipped in Shell—*Continued.*

DIGBY AND CHARLOTTE.

Year.	Digby.		Charlotte.		Totals.	
	1 lb. cans.	cwts in shell.	1 lb. cans.	cwts in shell.	1 lb. cans.	cwts in shell.
1897	27,072	113,521	101,904	15,470	128,976	128,991
1898	29,424	223,222	108,072	12,766	137,496	235,988
1899	27,408	20,794	105,696	11,125	133,104	31,919
1900	48,500	51,165	99,552	9,539	148,052	60,704
1901	129,735	67,091	109,440	8,732	239,175	75,823
1902	123,510	18,707	68,676	8,654	192,186	27,361
1903	131,226	19,681	99,800	7,180	231,026	26,861
1904	121,576	21,732	38,200	7,324	159,776	29,056
1905	186,614	19,100	90,240	9,775	276,854	28,875
1906	172,464	10,838	80,236	7,080	252,700	17,918
1907	153,298	7,845	54,412	7,077	207,710	14,922
1908	167,584	8,116	31,968	5,362	199,552	13,478
1909–10	113,780	8,810	32,640	7,132	146,420	15,942
1910–11	95,664	11,661		6,456	95,664	18,117
1911–12	121,776	10,864		6,969	121,776	17,833
1912–13	162,624	14,748		10,298	162,624	25,046
1913–14	128,544	12,278		9,808	128,544	22,086
1914–15	139,776	14,775		7,724	139,776	22,499
1915–16	139,680	14,427		6,591	139,680	21,018
Totals	2,220,255	669,375	1,020,836	165,062	3,241,091	834,437

SOUTHWESTERN COAST OF NOVA SCOTIA.

Year.	Lunenburg.		Queens.		Shelburne.		Yarmouth.		Total.	
	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.
1897	136,784	11,475	139,968	4,018	320,730	60,040	529,036	25,422	1,126,518	100,955
1898	148,128	1,053	160,464	3,616	439,968	55,150	653,976	18,100	1,402,536	77,919
1899	129,448	704	146,880	3,257	294,860	48,879	676,000	16,690	1,247,188	69,530
1900	154,640	545	89,276	30,100	434,512	48,480	673,000	17,451	1,351,428	96,576
1901	118,086	531	137,472	30,750	625,794	9,850	617,800	17,650	1,499,152	58,781
1902	135,775	643	83,506	680	543,370	44,562	1,027,200	34,320	1,789,851	80,205
1903	122,032	1,122	193,968	1,310	547,344	12,970	986,736	30,000	1,850,080	45,402
1904	117,670	1,151	164,880	2,834	621,562	12,580	1,122,768	31,892	2,026,880	48,457
1905	103,280	1,496	153,280	2,700	618,662	31,565	907,968	20,000	1,783,190	55,761
1906	124,460	1,906	91,920	3,245	610,316	24,556	807,520	22,100	1,634,216	51,807
1907	140,608	2,160	116,160	4,685	645,458	11,047	689,660	31,200	1,591,886	49,092
1908	139,776	1,123	141,000	3,393	573,008	23,876	597,936	33,883	1,451,720	62,275
1909–10	115,000	878	149,648	3,795	536,352	25,222	658,656	21,134	1,459,656	51,029
1910–11	106,176	411	103,728	4,130	463,920	16,543	610,080	36,548	1,283,904	57,632
1911–12	164,352	496	103,440	4,374	488,400	23,912	940,800	40,407	1,696,992	69,189
1912–13	42,960	3,754	100,512	2,776	406,080	18,748	692,736	14,841	1,242,288	40,119
1913–14	116,976	8,913	133,008	2,873	473,664	22,889	837,120	20,684	1,560,768	55,359
1914–15	57,312	2,204	77,088	2,522	416,976	18,915	666,384	23,753	1,217,760	47,392
1915–16	53,568	8,882	93,840	8,436	431,424	21,345	736,320	27,596	1,315,152	66,259
Totals	2,227,031	49,447	2,380,038	119,494	9,492,400	531,127	14,431,696	483,671	28,531,165	1,183,739

Lobsters Canned and Shipped in Shell—*Continued.*

SOUTHEASTERN COAST OF NOVA SCOTIA AND CAPE BRETON.

Year.	Halifax.		Guysboro.		Richmond.		Total.	
	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.
1897	537,552	12,197	933,572	1,140	406,148	98	1,877,272	13,435
1898	590,352	18,063	915,956	811	368,530	552	1,874,838	19,426
1899	473,384	13,073	825,936	2,282	348,622	3,641	1,647,942	18,996
1900	480,520	9,222	901,028	3,920	406,152	3,308	1,787,700	16,460
1901	440,784	12,842	672,240	3,168	324,284	962	1,437,308	16,912
1902	416,854	12,365	588,496	2,392	189,970	2,883	1,195,320	17,580
1903	432,624	9,563	543,196	2,673	255,160	1,344	1,230,980	13,580
1904	453,624	13,810	533,852	2,009	270,152	1,283	1,257,628	17,102
1905	407,380	21,541	494,500	9,895	237,518	2,168	1,139,398	33,604
1906	379,632	7,141	487,220	2,551	151,656	2,176	1,018,508	11,868
1907	322,488	11,297	401,848	3,429	119,678	587	844,014	15,313
1908	363,360	3,709	402,116	3,600	164,880	496	930,356	7,805
1909-10	252,508	4,588	298,436	2,982	132,404	445	683,348	8,015
1910-11	295,248	4,832	343,824	3,691	173,520	586	812,592	9,109
1911-12	273,312	7,853	347,472	6,688	175,824	.....	796,608	11,541
1912-13	226,080	10,963	361,440	3,769	195,120	459	782,640	15,191
1913-14	331,776	11,949	317,952	4,031	165,552	323	815,280	16,303
1914-15	338,160	5,583	240,720	3,907	103,152	.....	682,032	9,490
1915-16	154,992	11,169	222,816	7,239	149,664	1,170	527,472	19,578
Totals	7,170,630	201,720	9,832,620	70,207	4,337,986	22,381	21,341,236	294,308

EAST COAST CAPE BRETON.

Year.	Cape Breton.		Victoria.		Total.	
	1 lb. cans.	cwts in shell.	1 lb. cans.	cwts in shell.	1 lb. cans.	cwts in shell.
1897	492,552	.....	176,664	.....	669,216	.....
1898	413,308	4,000	134,516	.....	547,824	4,000
1899	477,072	23,066	120,436	151	597,508	23,217
1900	586,512	2,157	144,216	90	730,728	2,247
1901	430,720	959	122,560	11	553,280	970
1902	188,980	1,376	90,364	.....	279,344	1,376
1903	325,256	5,945	177,014	81	502,270	6,026
1904	389,366	2,912	216,312	70	605,678	2,982
1905	224,740	15,035	163,140	4,061	387,880	19,096
1906	234,608	10,422	137,208	10	371,816	10,432
1907	212,656	2,631	106,644	27	319,300	2,658
1908	271,280	2,175	93,456	23	364,736	2,198
1909-10	132,176	5,152	104,264	159	236,440	5,311
1910-11	256,080	1,432	148,032	36	404,112	1 468
1911-12	539,168	408	133,536	4	472,704	412
1912-13	331,776	55	138,624	20	470,400	75
1913-14	318,000	2,591	144,720	61	462,720	2,652
1914-15	265,056	49	112,368	.....	377,424	49
1915-16	246,048	4,631	87,312	61	333,360	4,692
Totals	6,135,354	84,996	2,551,386	4,865	8,686,740	89,861

Lobsters Canned and Shipped in Shell—*Continued.*

STRAIT COAST NOVA SCOTIA.

Year.	Cumberland.		Colchester.		Pictou.		Antigonish.		Inverness.		Total.	
	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.
1897	490,952		20,688		495,816	165	207,860		298,872	33	1,514,188	198
1898	505,524	24	14,400		417,236		164,256		259,256		1,355,672	24
1899	489,168		20,208		419,376	410	130,848		257,756		1,317,356	410
1900	399,000	72	36,722		500.832	150	158,036		250,834	688	1,345,424	910
1901	488,352	40	39,120		479,080	110	136,128		240,864	1,441	1,383,548	1,591
1902	435,792	38	49,872		413,184	190	128,256		222,075	761	1,249,179	989
1903	447,648	315	33,552		462,432		166,032		329,492	493	1,439,156	808
1904	402,216	130	37,248		457,920		175,816		272,492	938	1,345,692	1,068
1905	375,936	405	36,480		512,740		182,384		312,526	5,660	1,420,066	6,065
1906	363,972	193	33,264		470,536	4	137,328		393,712	400	1,398,812	597
1907	463,296	1,154	38,976		432,912		171,888		254,756	1,535	1,361,828	2,689
1908	515,325	187	53,856		532,560		159,168		224,302	528	1,485,214	715
1909-10	511,152	230			472,320	20	156,810		160,916	882	1,301,198	1,132
1910-11	457,920	555	28,272		531,888		145,488		200,496	217	1,364,064	772
1911-12	506,832	475	23,424		548,640	25	184,128		280,800		1,543,824	500
1912-13	357,072	354	15,120		481,392	45	208,608		346,848		1,409,040	399
1913-14	392,016	627	19,776		347,504	20	215,616		302,064		1,276,976	547
1914-15	450,768	530	12,192		467,952	10	229,200		304,944	12	1,465,056	552
1915-16	474,240	503	8,304		426,720	51	219,504		329,424	228	1,458,192	782
Totals	8,522,184	5,732	521,474		8,871,040	1,200	3,277,354		5,242,433	13,816	28,434,485	20,748

Lobsters Canned and Shipped in Shell—*Continued.*

EAST COAST NEW BRUNSWICK.

Year.	Restigouche.		Gloucester.		Northumberland.		Kent.		Westmorland.		Totals.	
	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.	1 lb. in cans.	cwts. in shell.
1897	37,400	360	1,351,400	570	108,600	130	414,100	305	400,000	1,420	2,311,500	2,785
1898	22,550	490	902,000	500	118,000	130	462,600	250	500,000	1,250	2,005,150	2,620
1899	26,000	220	686,700	650	107,200	200	443,110	500	808,400	1,290	2,071,410	2,860
1900	22,600	235	618,020	655	93,600	270	418,600	450	786,320	2,500	1,939,140	4,110
1901	20,400	1,130	568,200	640	75,500	280	325,000	358	743,800	4,250	1,732,900	6,658
1902	27,000	1,080	707,120	875	99,200	280	318,500	3,550	744,800	4,300	1,896,620	10,085
1903	37,072	1,475	792,040	1,150	123,500	400	363,260	730	721,000	4,300	2,036,872	8,055
1904	60,000	350	865,400	1,230	140,000	400	350,500	630	601,000	5,100	2,016,900	7,710
1905	28,000	260	877,000	1,150	187,600	400	437,600	2,750	629,000	1,700	2,159,200	6,260
1906	30,000	250	804,720	1,225	194,800	270	441,904	470	869,200	1,710	2,340,624	3,925
1907	38,800	310	948,800	1,050	200,000	250	488,500	440	1,000,500	1,450	2,676,600	3,500
1908	37,800	300	948,000	1,100	211,000	230	533,300	377	954,900	880	2,685,000	2,887
1909-10	28,280	1,265	718,840	1,130	220,100	285	374,300	2,712	705,500	3,250	2,047,020	8,642
1910-11	14,736	105	608,448	780	188,880	250	353,232	2,765	511,392	2,950	1,676,688	6,850
1911-12	16,800	16	670,944	500	218,016	250	387,744	230	514,368	1,496	1,807,872	2,512
1912-13	10,896	60	519,648	288	165,456	80	343,440	264	319,200	191	1,358,640	883
1913-14	11,904	60	340,128	444	154,800	60	296,256	205	377,040	4,106	1,180,128	4,875
1914-15	17,184	114	375,312	633	194,112	75	391,680	200	415,872	517	1,394,160	1,539
1915-16	18,768	94	463,248	836	243,504	50	419,624	798	304,848	628	1,449,992	2,406
Totals	506,190	8,204	13,765,968	15,406	3,043,868	4,280	7,563,250	17,984	11,907,140	43,288	36,786,416	89,162

Lobsters Canned and Shipped in Shell—*Concludod.*

PRINCE EDWARD ISLAND.

Year.	Kings.		Queens.		Prince.		Totals.	
	1 lb. in cans.	cwt. in shell.	1 lb. in cans.	cwt. in shell.	1 lb. in cans.	cwt. in shell.	1 lb. in cans.	cwt. in shell.
1897	775,236		508,005		1,183,441		2,466,682	
1898	642,944		546,776	39	1,150,300	35	2,340,020	74
1899	778,260		545,948	12	1,096,936	34	2,421,144	46
1900	716,448		499,804	75	1,007,460	60	2,223,712	135
1901	751,692		520,992		1,113,386	32	2,386,070	32
1902	754,368		484,944	90	800,291	134	2,039,603	224
1903	903,024		557,952	285	874,424	115	2,335,400	400
1904	1,024,656		606,234	1,500	870,210	33	2,501,100	1,533
1905	931,248		742,624	50	508,752	300	2,182,624	350
1906	914,496		482,064	350	892,728	90	2,289,288	440
1907	1,027,008		674,544	300	1,137,937	420	2,839,489	720
1908	1,120,416		647,568	510	1,330,460	20	3,098,444	530
1909-10	904,752		448,848	300	902,298	1,550	2,255,898	1,850
1910-11	822,864		560,208	350	797,712		2,180,784	350
1911-12	847,776		610,464	621	1,023,024	12	2,481,264	633
1912-13	1,038,336		795,504		796,464		2,630,304	
1913-14	695,040		399,312		689,280		1,783,632	
1914-15	892,800		478,752	25	747,984		2,119,536	25
1915-16	811,920		458,592	20	762,432	167	2,032,944	187
Totals	16,353,284		10,569,135	4,527	17,685,519	3,002	44,607,938	7,529

MAGDALEN ISLANDS AND QUEBEC.

Year.	Magdalen Islands.		Gaspé.		Bonaventure.		North Shore.		Totals.	
	1 lb. in cans.	cwt. in shell.	1 lb. in cans.	cwt. in shell.	1 lb. in cans.	cwt. in shell.	1 lb. in cans.	cwt. in shell.	1 lb. in cans.	cwt. in shell.
1897	703,656		226,552		64,666	94	41,328		1,036,202	94
1898	612,296		200,202	85	89,520	116	165,046		1,067,058	201
1899	639,500		190,854		92,628	125	136,676		1,059,658	125
1900	595,568		132,600		91,930	80	202,008		1,022,106	80
1901	449,518		92,548		72,936	70	210,169		825,171	70
1902	429,826		67,228		63,972	55	146,992		708,018	55
1903	666,208		104,004	18	60,300	90	147,922		978,434	108
1904	588,572		86,286		46,770	120	127,006		848,634	120
1905	885,646		97,720		72,370	183	90,676		1,148,412	183
1906	547,067		107,332		54,624	85	89,777		798,800	85
1907	588,109		104,928		62,592	90	64,094		819,723	90
1908	513,024		77,328		45,525	80	60,599	125	696,476	205
1909-10	686,186		109,968	75	59,528	373	85,938	600	941,620	1,048
1910-11			*799,584	735	81,408	250	89,664	70	970,656	1,055
1911-12	827,568	60	118,800	45	52,608	145	87,120	110	1,086,096	360
1912-13	694,080		133,536	55	48,480	72	90,576	18	966,672	145
1913-14	615,600		58,080	40	40,320	30	77,280	30	791,280	100
1914-15	442,464		38,592	50	26,256	50	36,528	50	543,840	150
1915-16	443,376		56,496	14	28,800	55	35,424	15	564,096	84
Totals	10,928,258	60	2,804,638	1,117	1,155,233	2,163	1,984,823	1,018	16,872,952	4,358

* Include pack from Magdalen Islands.

Lobster Canneries and Traps.

BAY OF FUNDY.

Year.	St. John.		Annapolis.		Kings.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	....	10,900	.....	7,925	.....	.....	...	18,825
1898	.....	10,700	.....	6,500	.....	.....	. .	17,200
1899	.....	13,200	.....	3,550	.....	.....	.....	16,750
1900	....	10,000	2	7,900	.....	.....	2	17,900
1901	.....	10,000	.....	4,525	.....	947	.....	15,472
1902	... .	5,250	.....	9,100	.....	991	.....	15,341
1903	.....	5,090	.....	7,800	.....	1,064	.....	13,954
1904	...	5,050	.....	5,500	.....	1,192	.....	11,742
1905	. . .	[1]9,650	. . .	.....	... ..	1,252	....	20,902
1906	.....	[2]5,425	.....	9,400	.....	1,722	.....	16,547
1907	.....	[3]4,905	.....	11,755	....	1,875	.....	18,535
1908	.....	[4]5,400	.....	12,950	.....	1,785	.....	20,135
1909-10	...	[5]4,455	.. ...	15,850	.....	1,725	.....	22,030
1910-11	... .	[6]5,568	.....	17,900	.... .	1,177	.....	24,645
1911-12	... .	[7]5,345	.....	12,420	.....	1,177	.....	18,942
1912-13	.....	[8]6,710	.....	8,915	.....	600	.....	16,225
1913-14	.....	[9]6,727	.....	9,500	.....	630	.....	16,857
1914-15	.....	[10]6,105	.....	8,500	.....	665	.....	15,270
1915-16	.....	[11]7,095	.....	9,875	....	955	..	17,925

[1] 200 in Albert Co. [2] 300 in Albert Co. [3] 300 in Albert Co. [4] 500 in Albert Co. [5] 500 in Albert Co. [6] 600 in Albert Co. [7] 800 in Albert Co. [8] 200 in Albert Co. [9] 150 in Albert Co. [10] 150 in Albert Co. [11] 200 in Albert Co.

DIGBY AND CHARLOTTE.

Year.	Digby.		Charlotte.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	4	24,700	7	24,192	11	48,892
1898	7	31,110	8	23,059	15	54,169
1899	11	28,885	7	17,702	18	46,587
1900	9	30,274	12	19,461	21	49,735
1901	8	35,111	7	20,620	15	55,731
1902	11	29,120	9	18,189	20	47,309
1903	10	34,376	5	17,179	15	51,555
1904	10	34,029	4	18,900	14	52,929
1905	11	35,470	4	6,476	15	41,946
1906	12	35,210	4	18,586	16	53,796
1907	15	34,105	4	19,746	19	53,851
1908	16	36,548	4	19,615	20	56,163
1909-10	14	33,820	4	21,144	18	54,964
1910-11	16	57,900	.....	20,672	16	78,572
1911-12	14	40,950	*4	20,975	18	61,925
1912-13	14	45,550	*4	20,100	18	65,650
1913-14	13	44,450	*4	22,944	17	67,394
1914-15	15	44,450	.....	25,458	15	69,908
1915-16	14	44,050	.....	27,688	14	71,738

* Not operated.

Lobster Canneries and Traps—*Continued.*

SOUTHWESTERN NOVA SCOTIA.

Year.	Lunenburg.		Queens.		Shelburne.		Yarmouth.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	7	14,230	8	12,478	9	82,085	9	30,250	33	139,043
1898	7	14,850	10	12,767	11	101,620	9	30,250	37	159,487
1899	6	12,000	13	12,700	12	101,320	11	23,150	42	149,170
1900	7	13,200	11	11,080	24	108,210	17	32,500	59	164,990
1901	6	15,220	7	15,231	25	109,200	22	37,200	60	176,851
1902	6	15,295	9	17,085	23	112,500	20	38,035	58	182,915
1903	6	16,910	9	19,345	21	109,400	19	40,810	55	186,465
1904	6	20,220	9	18,900	21	113,450	14	40,848	50	193,418
1905	5	20,870	9	19,000	21	42,700	15	40,855	50	123,425
1906	6	15,030	9	15,800	19	52,600	12	44,930	46	128,360
1907	7	19,000	8	17,800	16	74,500	14	45,180	45	156,480
1908	7	18,650	6	22,600	15	93,000	14	47,000	42	181,250
1909-10	6	25,100	6	23,200	17	100,000	15	47,000	44	195,300
1910-11	8	34,700	7	21,200	18	106,500	11	49,500	44	211,900
1911-12	7	33,300	6	27,100	19	113,800	16	68,955	48	243,155
1912-13	6	28,810	6	40,500	19	105,055	20	80,350	51	254,715
1913-14	7	31,635	8	42,200	19	111,512	21	88,545	55	273,892
1914-15	6	51,250	8	42,200	19	111,115	19	88,682	52	293,247
1915-16	6	63,800	8	43,300	18	118,390	19	91,800	51	317,290

SOUTHEASTERN COAST NOVA SCOTIA AND CAPE BRETON.

Year.	Halifax.		Guysboro.		Richmond.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	24	64,675	30	85,800	15	68,544	69	219,019
1898	22	64,210	34	118,100	15	40,670	71	222,980
1899	20	62,680	34	111,850	15	79,050	69	253,580
1900	22	89,650	32	125,575	20	51,980	74	267,205
1901	21	80,630	28	117,600	12	72,895	61	271,125
1902	20	76,625	27	97,800	10	41,080	57	215,505
1903	20	70,786	28	88,900	11	38,450	59	198,136
1904	20	77,783	29	85,160	11	39,900	60	202,843
1905	21	79,000	29	88,100	11	36,250	61	203,350
1906	19	74,050	38	70,700	11	46,050	68	190,800
1907	20	85,620	25	88,600	9	32,100	54	206,320
1908	20	91,140	27	102,100	11	40,715	58	233,955
1909-10	20	92,785	27	93,150	9	32,425	56	218,360
1910-11	19	77,378	25	100,365	9	42,938	53	220,621
1911-12	19	71,325	26	100,535	11	46,485	56	218,345
1912-13	12	73,065	†17	104,900	10	54,500	39	232,465
1913-14	16	80,935	17	75,350	12	37,750	45	194,035
1914-15	17	62,685	15	79,500	9	27,400	41	169,585
1915-16	16	69,865	14	63,380	12	28,900	42	162,145

†5 Canneries, valued at $4,000 not operated.

Lobster Canneries and Traps—*Continued.*

EAST COAST CAPE BRETON.

Year.	Cape Breton.		Victoria.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	16	42,400	20	26,215	36	68,615
1898	14	43,700	18	18,175	32	61,875
1899	15	61,199	17	13,699	32	74,898
1900	13	46,351	20	13,217	33	59,568
1901	18	38,270	17	13,983	35	52,253
1902	12	39,050	12	15,550	24	54,600
1903	14	31,588	18	14,553	32	46,141
1904	12	29,890	17	14,256	29	44,146
1905	11	39,200	18	14,064	29	53,264
1906	15	33,360	14	16,553	29	49,913
1907	12	32,365	11	13,886	23	46,251
1908	12	31,686	10	14,224	22	45,910
1909-10	12	29,860	11	17,114	23	46,974
1910-11	15	24,092	17	14,350	32	38,442
1911-12	16	34,940	16	15,292	32	50,232
1912-13	14	35,890	17	15,695	31	51,585
1913-14	16	42,740	20	20,305	36	63,045
1914-15	14	40,080	20	19,900	34	59,980
1915-16	17	36,880	15	11,480	32	48,360

STRAIT EAST OF NOVA SCOTIA AND CAPE BRETON.

Year.	Cumberland.		Colchester.		Pictou.		Antigonish.		Inverness.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	24	31,500	1	1,200	26	44,550	5	16,100	20	49,960	76	143,310
1898	28	39,450	1	1,200	25	46,415	6	22,150	24	54,000	84	163,215
1899	31	45,265	1	1,500	28	43,175	6	26,160	27	55,000	93	171,100
1900	37	46,630	4	4,600	26	47,700	6	20,800	27	49,305	100	169,035
1901	38	47,250	3	4,400	27	49,480	6	19,250	20	41,100	94	161,480
1902	36	54,300	3	4,400	25	47,660	6	17,400	20	41,450	90	165,300
1903	37	49,250	3	4,000	21	43,706	6	16,800	19	37,320	86	151,070
1904	40	52,295	2	4,000	22	44,429	6	21,300	18	40,400	88	162,424
1905	37	48,500	2	3,000	23	54,959	6	21,150	18	47,400	86	175,009
1906	32	47,120	2	4,000	23	59,800	6	18,400	20	55,400	83	184,720
1907	31	47,804	2	4,300	23	61,550	6	18,060	18	47,900	80	179,614
1908	31	51,330	2	4,400	21	64,675	6	21,847	17	47,950	77	193,202
1909-10	35	60,835	1		19	62,200	6	21,750	19	35,651	80	180,436
1910-11	28	47,945	1	2,000	18	66,555	5	20,052	17	46,075	69	182,627
1911-12	32	52,073	1	2,500	19	72,875	6	22,800	18	39,540	76	189,788
1912-13	*32	61,093	1	2,500	19	75,654	6	25,600	17	42,590	75	207,437
1913-14	32	59,093	2	4,625	19	80,975	7	27,000	22	30,142	82	201,835
1914-15	31	59,257	2	2,700	19	77,780	7	27,700	25	52,810	84	220,247
1915-16	34	56,423	2	2,000	19	55,706	7	35,300	26	46,415	88	195,844

* 5 canneries, valued at $1,500, not operated.

Lobster Canneries and Traps—*Continued.*

EAST COAST, NEW BRUNSWICK.

Year.	Restigouche.		Gloucester.		Northumberland.		Kent.		Westmorland.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897 ...	1	2,260	59	76,860	9	12,200	55	48,400	70	46,100	194	185,820
1898....	2	3,260	60	80,700	12	13,000	56	55,000	61	58,000	191	209,960
1899....	2	3,500	64	82,300	13	14,000	58	48,500	72	61,800	209	210,100
1900....	2	4,100	67	85,300	16	15,300	55	52,700	85	60,000	225	217,400
1901....	2	4,200	67	89,400	14	14,500	57	54,900	74	58,000	214	221,000
1902....	2	4,200	64	91,400	14	14,700	35	37,000	74	59,000	189	206,300
1903....	2	4,680	61	94,000	13	15,000	40	38,000	78	66,500	194	218,180
1904....	3	5,100	63	101,000	13	15,000	44	43,500	79	68,000	202	232,600
1905....	3	6,650	65	105,000	12	15,000	46	41,500	68	75,000	194	243,150
1906 ...	3	5,650	67	101,800	12	16,500	45	39,000	66	79,200	193	242,150
1907 ...	2	5,100	69	113,500	12	17,000	39	34,700	58	95,000	180	265,300
1908....	2	6,600	70	111,500	11	18,500	41	54,500	59	95,700	183	286,800
1909-10.	2	5,200	69	110,300	11	21,000	44	53,800	59	97,000	185	287,300
1910-11.	1	4,200	71	108,900	12	22,500	42	56,500	59	97,400	185	289,500
1911-12.	1	4,000	82	84,620	14	21,700	48	51,460	51	65,300	196	227,080
1912-13.	1	3,000	95	100,270	15	24,880	42	52,050	41	78,210	194	258,410
1913-14.	1	3,800	84	78,750	16	28,500	36	48,960	38	63,000	175	223,010
1914-15.	2	3,350	78	70,070	15	27,900	35	47,600	37	73,200	167	222,120
1915-16.	2	3,800	74	53,338	16	18,925	28	42,295	31	63,025	151	181,383

PRINCE EDWARD ISLAND.

Year.	Kings.		Queens.		Prince.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	50	75,880	63	49,800	107	96,453	220	216,133
1898	52	96,500	60	59,290	118	128,495	230	284,285
1899	55	90,680	67	67,000	118	125,434	240	283,114
1900	55	87,595	63	77,550	128	136,972	246	302,117
1901	54	95,310	62	72,500	109	113,070	225	280,880
1902	51	98,576	51	54 930	90	88,390	192	241,896
1903	53	101,775	51	57,680	86	93,740	190	253,195
1904	54	117,675	53	74,240	92	104,060	199	295,975
1905	52	111,050	55	78,880	89	94,030	196	283,960
1906	52	122,900	52	74,825	84	115,220	188	312,945
1907	49	118,500	51	64,500	84	122,970	184	305,970
1908	50	130,000	51	83,960	82	136,339	183	350,319
1909-10	51	129,700	50	78,080	86	152,725	187	360,505
1910-11	52	127,000	50	77,340	85	155,530	187	359,870
1911-12	49	118,000	53	82,140	83	139,200	185	339,340
1912-13	53	133,600	56	88,475	86	168,470	195	390,545
1913-14	60	145,600	59	94,027	78	177,120	197	416,747
1914-15	48	156,800	53	85,251	88	146,700	189	388,751
1915-16	49	135,400	45	61,254	78	98,250	172	294,904

Lobster Canneries and Traps—*Concluded.*

MAGDALEN ISLANDS AND QUEBEC.

Year.	Magdalen Islands.		Gaspé.		Bonaventure.		North Shore.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	63	76,370	22	29,655	9	9,895	5	775	99	116,695
1898	88	99,385	29	35,230	9	14,395	28	13,460	154	162,470
1899	87	90,135	27	41,450	11	15,750	30	12,010	155	159,345
1900	100	85,065	26	26,350	13	16,600	20	6,970	159	134,985
1901	83	78,520	22	19,500	12	13,600	34	17,100	151	128,720
1902	43	56,500	14	7,950	12	11,170	24	16,450	93	92,070
1903	34	51,110	16	15,350	11	10,600	22	9,250	83	86,310
1904	45	58,200	15	15,500	11	11,600	20	7,620	91	92,920
1905	50	50,645	11	24,200	12	11,000	19	8,800	92	94,645
1906	38	61,650	13	7,500	15	13,720	12	6,765	78	89,635
1907	57	82,712	14	8,064	10	9,150	15	8,464	96	108,390
1908	48	74,230	13	16,160	11	13,050	18	6,449	90	109,889
1909-10	43	71,250	11	12,560	11	11,830	19	7,080	84	102,720
1910-11	48	74,800	12	15,100	9	12,160	27	6,685	96	108,685
1911-12	42	86,550	15	18,200	10	8,595	29	7,040	96	120,385
1912-13	40	76,855	18	19,499	10	8,600	47	8,980	115	113,934
1913-14	40	120,250	20	21,110	10	9,000	45	10,020	115	160,380
1914-15	40	120,250	20	21,110	10	9,000	44	7,020	114	157,380
1915-16	38	62 725	9	9,965	7	3,600	19	5,895	73	82,185

RECAPITULATION.

Lobsters canned and in the shell.

Year.	Nova Scotia.		New Brunswick.		Prince Edward Island.		Quebec.		Total.	
	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.	1 lb. cans.	cwt. in shell.
1897	5,214,266	229,682	2,413,404	22,055	2,466,682	.....	1,036,202	94	11,130,554	251,831
1898	5,210,294	326,313	2,113,222	21,776	2,340,020	74	1,067,058	201	10,730,594	348,364
1899	4,837,402	134,462	2,177,106	19,965	2,421,144	46	1,059,658	125	10,495,310	154,598
1900	5,263,780	169,196	2,038,692	19,729	2,223,712	135	1,022,106	80	10,548,290	189,140
1901	5,003,023	146,488	1,842,340	17,605	2,386,070	32	825,171	70	10,056,604	164,195
1902	4,637,204	120,902	1,965,296	20,853	2,039,603	224	708,018	55	9,350,121	142,034
1903	5,153,712	88,586	2,136,672	17,545	2,335,400	400	978,434	108	10,604,218	106,639
1904	5,357,454	92,513	2,055,100	16,882	2,501,100	1,533	848,634	120	10,762,288	111,048
1905	4,917,148	134,871	2,249,440	18,520	2,182,624	350	1,148,412	183	10,497,624	153,924
1906	4,595,816	87,956	2,420,860	12,889	2,289,288	440	798,800	85	10,104,764	101,370
1907	4,270,326	84,279	2,731,012	12,401	2,839,489	720	819,723	90	10,660,550	97,490
1908	4,399,610	87,321	2,716,968	10,317	3,098,444	530	696,476	205	10,911,498	98,373
1909-1910	3,794,422	81,960	2,079,660	19,089	2,255,898	1,850	941,620	1,048	9,071,600	103,947
1910-1911	3,960,336	93,871	1,676,736	14,736	2,180,784	350	970,656	1,055	8,788,512	110,012
1911-1912	4,631,904	98,659	1,807,872	11,171	2,481,264	633	1,086,096	360	10,007,136	110,823
1912-1913	4,049,952	71,816	1,358,640	13,418	2,630,304	.....	966,672	145	9,005,568	85,379
1913-1914	4,197,552	84,063	1,220,128	16,716	1,783,632	.....	791,280	100	7,992,592	100,879
1914-1915	3,665,760	75,683	1,394,160	10,966	2,119,536	25	543,840	150	7,723,296	86,824
1915-1916	3 774,336	107,366	1,450,992	11,692	2,032,944	187	564,096	84	7,822,368	119,329
Totals	86,934,297	2,315,987	37,848,300	308,325	44,607,93	7,529	16,872,952	4,358	186,263,487	2,636,199

RECAPITULATION.

Number of lobster canneries and traps.

Year.	Nova Scotia.		New Brunswick.		Prince Edward Island.		Quebec.		Total.	
	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.	Canneries.	Traps.
1897	218	602,612	201	220,912	220	216,123	99	116,695	738	1,156,352
1898	231	645,167	199	243,719	230	284,285	154	162,470	814	1,335,641
1899	247	681,183	216	241,002	240	283,114	155	159,345	858	1,364,644
1900	277	698,972	237	246,861	246	302,117	159	134,985	919	1,382,935
1901	258	702,292	221	251,620	225	280,880	151	128,720	855	1,363,512
1902	240	657,531	198	229,739	192	241,896	93	92,070	723	1,221,236
1903	242	625,052	199	240,449	190	253,195	83	86,310	714	1,205,006
1904	237	643,552	206	256,550	199	295,975	91	92,920	733	1,288,997
1905	237	591,770	198	269,276	196	283,960	92	94,645	723	1,239,651
1906	238	600,125	197	266,161	188	312,945	78	89,635	701	1,268,866
1907	217	636,400	184	289,951	184	305,970	96	108,390	681	1,340,711
1908	215	705,600	187	311,815	183	350,319	90	109,889	675	1,477,623
1909-10	217	692,465	189	312,895	187	350,505	84	102,720	677	1,458,585
1910-11	214	720,577	185	315,740	187	359,870	96	108,685	682	1,504,872
1911-12	226	756,067	200	253,400	185	339,340	96	120,385	707	1,469,192
1912-13	210	801,267	198	285,220	195	390,545	115	113,934	718	1,590,966
1913-14	231	787,387	179	252,681	197	416,747	115	160,380	722	1,617,195
1914-15	226	796,674	167	253,733	189	388,751	114	157,380	696	1,596,538
1915-16	227	778,519	151	216,166	172	294,904	73	82,185	623	1,371,774

APPENDIX 21.

THE OUTSIDE STAFF OF THE FISHERIES BRANCH.

LIST OF INSPECTORS OF FISHERIES IN THF DIFFERENT PROVINCES OF THE DOMINION OF CANADA. *

Name.	P.O. Address.	Extent of Jurisdiction.
McLeod, A. G	Whitney Pier, Sydney. N.S....	District No. 1—Cape Breton Island.
Hockin, Robt.	Pictou, N.S	District No. 2—Cumberland, Colchester, Pictou. Antigonish, Guysboro, Halifax and Hants counties.
Fisher, Ward.....	Shelburne, N.S	District No. 3—Lunenburg, Queens, Shelburne, Yarmouth, Digby, Annapolis and Kings counties.
Calder, John F.....	Campobello, N.B....	District No. 1—The Counties of Charlotte and St. John.
Morrison, Donald.....	Newcastle, N.B.....	District No. 2—Restigouche, Gloucester, Northumberland, Kent, Westmorland and Albert counties.
Harrison, H. E.....	Fredericton, N.B. ..	District No. 3—Kings, Queens, Sunbury, York, Carleton, Madawaska and Victoria counties.
Matheson, J. A.....	Charlottetown	Prince Edward Island.
J. B. McDonald	Charlottetown	Prince Edward Island—Assistant Inspector.
Bernier, Dr. J. E.....	Gaspé Basin, Que....	Lower St. Lawrence river and gulf.
Howell, Capt. J. A.....	Selkirk, Man.....	District No. 1.
Reid, D. F....	509 Boyd Bldg, Winnipeg, Man.	District No. 2.
Davidson, Geo. S.....	Indian Head, Sask..	Province of Saskatchewan. } Chief " Alberta and district of McKenzie. } Inspector
McDonald, G. C.....	Prince Albert, Sask.	Province of Saskatchewan.
Willson, Justus.....	Noyes Crossing, Alta.	Northern Alberta.
Payson, C. C	Dawson City.....	Yukon District.
Cunningham, F. H.....	New Westminster...	Province of British Columbia—Chief Inspector for the Province.
Halladay, A. P..... .	"	Province of British Columbia—Assistant Inspector, District No. 1, Southern district.
Williams, J. T	Port Essington . ..	Province of British Columbia—Northern district No. 2.
Taylor, E. G.....	Nanaimo.....	" " No. 3, Vancouver Island.

* Revised up to July 1916.

LIST OF FISHERY OFFICERS IN THE DOMINION OF CANADA.

NOVA SCOTIA.

DISTRICT No. 1—A. G. McLEOD, Inspector.

Richmond County.

Name of Officer.	P.O. Address.	Extent of District.
P. J. Thibeau	Thibeauville	The coast line from Pt. Tupper along Lennox Channel and St. Peter's Inlet to the Inverness County boundary line at West Bay.
S. Boudrot	Petit de Grat	Ile Madame.
A. Sampson	L'Ardoise	The coastwaters from Fourchu, along St. Peter's Inlet to Irish Cove.

Cape Breton County.

Allan McDonald	Gabarus	The coast line from Fourchu to Simon Pt. Thence inland in a straight line to Marion Bridge thence following the south shore of Mira Lake and the north shore Giant Lake to Richmond County line.
Wm. Burke	Grand Mira	From Simon Pt. to Marion Bridge; thence along the Mira River to Mira Gut; thence to Landing Cove including Louisburg and Catalone Lake, thence along the shore to Simon Pt.
Edward Hall	Main-à-Dieu	The coast line from Landing Cove to Mira Gut.
Angus McLean	Clark's Road	Scatarie Island.
Norman Ferguson	Port Morien	The coast line from Mira Gut to Sydney.
H. A. King	Little Bras d'Or	The coast from Pt. Aconi to and including North Sydney, thence to and including the Georges River, thence along the coast to the Victoria County boundary line.
M. McLean	Jacksonville	The coast line from Sydney to North Sydney; thence across to the mouth of Georges River, thence along the coast to the north side of Piper's Cove.
J. A. Gillis	Grand Mira	The coast from Piper's Cove to Irish Cove; thence along the county line to Giant Lake; thence along the north side of Giant and Mira Lakes to Marion Bridge; thence to Sydney.

Victoria County.

D. J. Grant	Boulardarie East	The coast line from Pt. Aconi to Kemp Head; thence to Big Harbour; thence to Cape Dauphin.
Allan McAulay	Big Baddeck	The coast line from Big Harbour to Nyanza.
W. A. McDonald	Brook, Middle River	From Ferry Landing to McKinnon's Harbour to Iona and McKay's Pt., and thence to Ferry Landing; also the coast from the Inverness County line to and including Nyanza, including Middle River.
Angus McDonald	Plaster, North Shore	The coast line from Skir Dhu to Cape Dauphin, including all streams flowing thereinto.
J. T. Donovan	Ingonish Centre	The coast line from Skir Dhu to Green Cove, including all streams flowing thereinto.
Wm. Hellen	Cape North	The coast line from Green Cove to the south side of Meat Cove including all streams flowing thereinto.

Inverness County.

G. P. McIntosh	Pleasant Bay	The coast line from Meat Cove to and including White Cape.
Lazare LeBlanc	Eastern Harbour	The coast line from White Cape to and including Grand Etang.
M. J. Coady	S. W. Margaree	The coast line from Grand Etang to and including Broad Cove Chapel; also the eastern portion of Loch Ban and Lake Ainslie and the Margaree River.

List of Fishery Officers in the Dominion of Canada—*Continued.*

District No. 1—Nova Scotia—*Continued.*

Inverness County—Con.

Name of Officer.	P. O. Address.	Extent of District.
J. J. Ross	N. E. Margaree	The Margaree River from the Forks to the source.
D. N. McLellan	Dunvegan	The coast line from Broad Cove Chapel to the northern side of Little Mabou also the waters of Wycocomagh Bay from the Victoria County line to Indian Island. The western part of Lake Ainslie and Loch Ban.
A. J. McDonald	Seaside, Port Hood	The coast line from the Northern side of Little Mabou to Point Tupper.
J. B. McLellan	Kingsville	The waters along the Great Bras d'Or Lake from the Richmond County line to Indian Island.

District No. 2.—R. Hockin, Inspector.

Cumberland County.

		The coast waters of Minas Basin and Bay of Fundy and all streams, their tributaries and headwaters flowing thereinto, except La Planche river.
C. T. Hunter	Linden	La Planche river and the coast waters of the county from the New Brunswick line to Port Philip bridge.
Alex. D. Marshall	Port Howe	Philip river.
R. S. Smith	Pugwash	The coast waters of the county from Port Philip bridge eastward to within one mile of Cape Cliff, and all streams, their tributaries and headwaters flowing thereinto.
Frank Kirwan	Wallace	The coastwaters of the county from Polling section No. 7 eastward to the Colchester Co. line, and all streams, their tributaries and headwaters flowing thereinto, excepting Wallace river.
Frank Angevine	Wallace Bridge Station, R. R. No. 1.	Wallace River.

Colchester County.

Benj. Langille	Tatamagouche	The coastwaters of Northumberland Strait, and all streams their tributaries and headwaters flowing thereinto.
John McCleave	Lr. Stewiacke	The coastwaters of Cobequid Bay from and including Salmon river, to and including Shubenacadie river and all streams, their tributaries and headwaters flowing thereinto.
S. F. Fletcher	Upper Economy	The coastwaters of Cobequid Bay from Salmon river westward to the Cumberland county line and all streams, their tributaries and headwaters flowing thereinto.

Pictou County.

R. Sutherland	River John	The coastwaters of the county from the Colchester county line to Cole's reef at the mouth of Pictou harbour and all streams, their tributaries and headwaters flowing thereinto.
A. O. Pritchard	New Glasgow	Pictou harbour, all streams, their tributaries and headwaters flowing thereinto. Also Pictou island.
Wm. Germain	Reidway	The coastwaters of the county from the light house at Pictou to Merigomish harbour and that portion of Merigomish harbour west of an imaginary line drawn from the eastern point of Beatty island thence to the mouth of that harbour, and all streams, their tributaries and headwaters flowing thereinto. Also the east branch of St. Mary's river.

List of Fishery Officers in the Dominion of Canada—*Continued.*

District No. 2—Nova Scotia—*Continued.*

Pictou County—Con.

Name of Officer.	P.O. Address.	Extent of District.
D. L. McDonald.....	Bailey's Brook	Merigonish harbour eastward of an imaginary line drawn from the eastern bank of French river to the eastern point of Beatty island, thence the mouth of that harbour. Also the coast waters of the county from Merigonish harbour, to the Antigonish county line, and all streams, their tributaries and headwaters flowing thereinto.
	Antigonish County.	
Hugh McDougall,.....	Cross Roads, Ohio..	The whole county of Antigonish.
	Guysboro County.	
John A. Dillon.....	Guysboro...	The coastwaters of the county from the Antigonish county line to and including Isaacs harbour and all streams, their tributaries and headwaters flowing thereinto.
R. V. Cooper..... ..	Wine Harbour.....	The coastwaters of the county from Isaacs harbour to the Halifax county line and all streams, their tributaries and headwaters flowing thereinto.
	Halifax County.	
R. Gaston....	Tangier.....	The coast waters of the county from the Guysboro county line to the church at the mouth of Ship Harbour and all streams, their tributaries and headwaters flowing thereinto.
George Rowlings..	Musquodoboit Harbour.	The coast waters of the county from the church at the mouth of Ship Harbour, to a line drawn N.N. West from the Fairway buoys at the entrance of Halifax Harbour, to St. George's Island, thence midway between the eastern and western shores of Halifax Harbour and Bedford Basin to the head thereof, and all streams, their tributaries and headwaters flowing thereinto.
Thomas Kennedy.....	Black Point.....	Halifax Harbour, west of a line drawn N.N. West from the Fairway buoys at the entrance of Halifax Harbour to St. George's Island, thence midway between the eastern and western shores of the harbour, and Bedford Basin, to the head thereof, including Polling section 17, as shown on Church's map of Halifax county; also the coast waters of the county from Halifax Harbour Westward to Lunenburg county, and all streams, their tributaries and headwaters flowing thereinto.
	Hants County.	
R. J. U. Salter..	Newport.....	The coast waters of Minas Basin from the Kings County line eastward to Tennycape and all streams, their tributaries and headwaters flowing thereinto.
Thomas Rose.....	Urbanian	The coast waters of the county from Tennycape to and including the Shubenacadie River and all streams, their tributaries and headwaters flowing thereinto.

List of Fishery Officers in the Dominion of Canada—*Continued.*

NOVA SCOTIA—*Concluded.*

District No. 3.—Ward Fisher, Inspector.

Lunenburg County.

Name of Officer.	P. O. Address.	Extent of District.
A. J. Evans	Chester	From the Halifax County line to Mahone Bay, including the municipality of Chester.
L. J. Hebb	Lunenburg	From the Queens County line to Mahone Bay and taking in all inland waters not included in the District of Overseer Evans.

Queens County.

C. A. Young	Mill Village	From the Lunenburg County line to and including the Medway River and tributaries and Port Medway Harbour.
W. E. Fraser	Liverpool	From the Shelburne County line to, but not including Port Medway Harbour ; and inland waters except the Medway River and tributaries.

Shelburne County.

George Walls	Allandale	From the Queens County line to the East side of the Clyde River.
Henry Stoddart	Lower Shag Harbour	From the Yarmouth County line to the west side of the Clyde River.

Yarmouth County.

J. G. D'Entremont	Middle W. Pubnico.	Yarmouth County.

Digby County.

Wm. Aymar	Meteghan	The municipality of Claire.
G. E. Torrie	Digby	The remainder of the county including Digby Neck.

Annapolis County.

Walter Purdy	Deep Brook	Annapolis County.

Kings County.

Capt. Edward Chute	Canada Creek	From the Annapolis County line along the Bay shore to Cunard ; including the adjacent inland waters.
C. F. A. Rathbone	Hortonville	From the Kings County line to Cunard and including the inland waters of the Gaspereau and Aylesford lakes.

List of Fishery Officers in the Dominion of Canada—*Continued.*

NEW BRUNSWICK.

District No. 1.—J. F. Calder, Inspector.

Charlotte County.

Name of Officer.	P.O. Address.	Extent of Jurisdiction.
W. A. Fraser	Woodward's Cove, Grand Manan.	Island of Grand Manan and islands adjacent thereto.
Burden Brown	Wilson's Beach	Campobello Island.
Chas. H. Lord	Lord's Cove, Deer Island.	Parish of West Isles.
Robert Worrel	St. Andrews	The coast line from St. Stephen to Oven Head.
Elgin McNichol	Le Tete	The coast line from Oven Head to Bliss Island, including St. George.
E. C. Justasson	Pennfield	The coast line from the eastern side of L'Etang Harbour to the mouth of the Pocologan river.
Jos. Ellis	Lepreaux	The coast line from the mouth of the Pocologan river to the St. John county boundary line.

St. John County.

B. B. Brittain	55 Middle St., St. John West.	St. John county.

District No. 2.—D. Morrison, Inspector.

Albert County.

Wm. J. McLaughlin	Riverside	Parishes of Hopewell, Hillsboro' and Coverdale.
M. P. Akerley	West River	Parishes of Alma, Harvey and Elgin.
Jas. A. Steeves		Petitcodiac river and tributaries, in the county of Albert.

Westmorland County.

	Baie Verte	Parishes of Westmorland and Sackville.
Robert Prescott	Baie Verte	The coast line from Port Elgin to and including Great Shemogue harbour: also all rivers and streams flowing thereinto.
S. Vienneau	Dupuis Corner	The coast line from Great Shemogue harbour to the Kent county line; including all rivers and streams flowing thereinto.
P. T. Belliveau	Pre-d'en-haut	The parish of Dorchester, including the Petitcodiac river, in the county of Westmorland.

Kent County.

E. T. Despres	Cocagne Bridge	Parish of Dundas, including the Cocagne river.
P. A. Allain	Buctouche	Coast line and inland waters of the parishes of Wellington, St. Mary's and St. Paul.
W. F. Hannah	Richibucto	From Chockfish river to Eel river, on the coast, including the Portage, Black, Kouchibouguac, St. Louis and Richibucto rivers and branches flowing thereinto.

List of Fishery Officers in the Dominion of Canada—*Continued.*

District No. 2—New Brunswick—*Continued.*

Northumberland County.

Name of Officer.	P. O. Address.	Extent of District.
W. Williston	Bay du Vin	The coast line from Bay du Vin easterly to the county line, including the islands of Bay du Vin, Huckleberry and Fox.
Ronald McDonald	Bayside	The waters of Bay du Vin, du Vin and Black rivers and the inland waters of the Parishes of Hardwick and Glenelg.
L. H. Abbott	Chatham	The coast line from the Northumberland County line to Newcastle on the north side of the Miramichi river, and Nelson to Point au Car on the south side of the Miramichi river.
Lester D. Parker	Derby	The south-west Miramichi river and its tributaries to the county line.
M. Sutherland	Red Bank	The north-west Miramichi river and its tributaries to the county line.

Gloucester County.

E. Sewell	Pokemouche	The coast line from Northumberland County to Tracadie Gully, including all rivers and streams flowing thereinto; also Upper Pokemouche.
Edmond Arseneau	Inkerman	The coast line from Tracadie Gully to Shippegan, including the south shore of St. Simon river.
Adolphe Ache	Shippegan	The islands of Shippegan and Miscou.
John A. Mourant	Caraquet	The coast waters of Caraquet and St. Simon.
Thos. Canty	Bathurst	The coast line of the Parishes of Bathurst and New Bandon; also all rivers and streams flowing thereinto.
Jas. P. Doucet	Petit Rocher	The coast line from the Parish of Bathurst to Northumberland County line; including all rivers and streams flowing thereinto.

Restigouche County.

Wm. C. Hamilton	Black Lands	The coast line from Gloucester County to Bon Amis Rocks, including all rivers and streams flowing thereinto.
E. Ferguson	Point la Nim	Restigouche river and tributaries west of Arseneau's Point.

District No. 3—H. E. Harrison, Inspector.

Queens County.

J. B. Wiggins	Cody's	The St. John River from King's County to the mouth of the Washadamoak, the Washadamoak and Canaan waters, the Salmon River waters and northern Grand Lake as far south as Flowers Cove-Cox's Point.
Wm. Holmes	Gagetown	Grand Lake, south of Flower's Cove-Cox's Point, Maquapit Lake, Jemseg Creek, St. John River from Sunbury County to the Washadamoak and all waters south-west of St. John River.

Sunbury County.

F. Rabbitt	Swan Creek	All of Sunbury County.

List of Fishery Officers in the Dominion of Canada—*Continued.*

District No. 3—New Brunswick—*Concluded.*

York County.

Name of Officer.	P. O. Address.	Extent of District.
A. C. McNally	Mouth of the Keswick (R. R. 1).	The St. John River and all waters emptying into it, with the exception of the Nashwaak River and branches in the county of York.
T. A. Niles	Fredericton	Southwest Miramichi waters, Nashwaak, St. Croix, Oromocto, Magaguadavic waters and Eel Lakes in the county of York.

Victoria County.

C. Watson	Undine	All of Victoria County.

Madawaska County.

I. A. Gagnon	Edmundston	All of Madawaska County.

PRINCE EDWARD ISLAND—J. A. Matheson, Inspector.

Kings County.

John Keays	Souris	All of Kings County.

Queens County.

A. C. McAulay	Tracadie Cross	All of Queens County.

Prince County.

Geo. Quinn	Leoville	That part of Prince County west of a line drawn from Cascumpec Bay through Foxley River and passing through Portage on the line of railway and through Percival River to Baptist Point.
John McFarlane	Cape Traverse	That part of Prince County east of a line drawn from Cascumpec Bay through Foxley River and passing through Portage on the line of railway and through Percival River to Baptist Point.

PROVINCE OF QUEBEC.—Dr. J. Bernier, Inspector.

Gaspe and Bonaventure Counties.

Kennedy, Frederick	Douglastown	That portion of the province south of the St. Lawrence, to and including county of Bellechasse, but especially the counties of Bonaventure and Gaspe.

List of Fishery Officers in the Dominion of Canada—*Continued.*

QUEBEC—*Concluded.*

Quebec County.

Name of Officer.	P. O. Address.	Extent of Jurisdiction.
Migneault, T.	140 St. François St., Quebec.	From Quebec to the Saguenay river on the north shore and from Quebec to Rimouski on the south shore.

Magdalen Islands.

Chiasson, Cirice	House Harbour	Magdalen islands.
Chevrier, J. A	Havre Aubert	That part of Magdalen islands comprising Entry, Amherst and Grindstone islands, also Harbour Basque lagoons.

Saguenay County.

Comeau, N. A	Quebec	Saguenay county.
Levesque, Elzear	Seven Islands.	"
Le Blanc, Wm	Esquimaux Point	"
Landry, Wilfrid	Natashquan	"
Cormier, A	Esquimaux Point	"
Evans, T. W	St. Augustine.	"
Kennedy, Jas	Old Fort via Sydney.	"
Annett, Geo.	Blanc Sablons.	"

MANITOBA.

District No. 1.—J. A. Howell, Inspector.

D. S. Daly	Selkirk	Lake Winnipeg and Red River.

District No. 2.—D. F. Reid Inspector.

C. L. White	Winnipegosis	Lakes Winnipegosis and Manitoba, and tributaries.
E. H. Stevenson	The Pas	The Pas District.

SASKATCHEWAN.—G. C. McDonald, Inspector.

McNicol, Duncan	Wadena	Wadena district.
Hunter, G. S.	Regina Beach.	District of Long Lake, Qu'Appelle river, bounded on south by base line Tp. No. 16, on north by Tp. No. 30, on east by east side of Range 19, and on west by west side of Range 27, all west of 2nd meridian.
Fitzgerald, Ira	Meota	Jackfish lake district.
Beatty, Edward	Green Lake, P.O.	Isle la Crosse district.

ALBERTA.—J. Willson, Inspector, Northern Alberta.

Hoad, Nelson J.	639 6th Ave, west, Calgary	Southern Alberta.
Wood, Ingram	Wetaskiwin.	Pigeon lake, etc.
Travers, Oliver	Grouard	Lesser Slave Lake and vicinity.
Whitley, Jno. M.	Ardmore	Cold Lake district.

List of Fishery Officers in the Dominion of Canada—*Continued.*

BRITISH COLUMBIA.

District No. 1.—Chief Inspector F. H. Cunningham.

Name of Officer.	P. O. Address.	Extent of Jurisdiction.
J. L. Hill	Quesnel	That territory covered by the Lillooet district, north of Clinton and part of Caribou and including all lakes and streams west of the North Thompson River to Meridian 125 and north to and including Blackwater River.
D. F. M. Perkins	Fort George	That territory north of Blackwater River contained in the Caribou district, including Upper and Lower Necacho Rivers and all intervening streams, extending north to and including Frank and Stuart Lakes.
Chas. Golwin	Vernon	That portion of the Yale district south and east of the junction of the Nicola and Thompson Rivers, including the Okanagan lakes and all streams flowing into them; Osoyos and Kettle and Similkameen Rivers.
John McLeod	Nelson	That portion known as Kootenay and the boundary country, including Kootenay Lake, Slocan Lake, Upper and Lower Arrow Lakes and all the streams flowing into them, together with the Columbia River.
H. Shotton	Kamloops	That portion of the Yale electoral district south and east of Ashcroft, and including Kamloops, Salmon Arm, Shuswap, Seymour, Yale and Adams Lakes, Adams River and the north and south Thompson Rivers.

District No. 2.—Inspector J. T. Williams.

James Boyd	Vancouver	From Addenbrooke Island, in Fitz-Hugh Sound, following the southerly coast of Hecate Island; thence north following the coast line to Lowe Inlet, Granville Channel; thence following the easterly shore line back to Addenbrooke Island, including all inlets, bays, channels and lakes embraced in this area, with the exception of Dean and Burke Channels.
Stewart Norrie	Prince Rupert	Prince Rupert District, including the Lower Skeana River.
W. T. Adamson	Naas	Naas Harbour.
G. Sangstad	Rivers Inlet	Rivers Inlet District.
Jno. Widsten	Bella Coola	Bella Coola and Kinsquit District.
Chas. Harrison	Massett, Q.C.I.	Queen Charlotte Islands.
John Haan		Naas River.

District No. 3.—Inspector E. G. Taylor.

		The Quatsino District, embracing that portion of Vancouver island from Cape Scott in the north along the western coast to Tatchu Point at the entrance to Esperanta Inlet.
John Grice	Clayoquot	The Clayoquot Sound District, to extend from Tatchu Point along the coast to the southern extremity of Wreck Bay; the Alberni District, to extend from the southerly extremity of Wreck Bay to San Juan Harbour.

List of Fishery Officers in the Dominion of Canada—*Concluded.*

District No. 3—British Columbia—*Concluded.*

Name of Officer.	P.O. Address.	Extent of District.
J. B. Wood	Alberni	That portion of the coast from San Juan Harbour to Esquimault.
R. M. Colvin	Cowichan Bay	The Cowichan District, from and including Esquimault Harbour around the coast to the north side of Cowichan Bay, including Saanich Arm and the islands opposite Sidney.
Harry McIndoo	Nanaimo	Nanaimo District, extending from the north side of Cowichan Bay to and including Big Qualicum River.
H. Beadvall	Courtney	Comox District, extending from Big Qualicum River to and including Oyster River as well as Denman Island.
A. F. Lloyd	Quathiaske Cove	The Campbell River District, to extend from Oyster River to and including Adams River, also Cracroft Island, Knight Inlet, Simberland Channel, Loborough Inlet, Phillips Arm, Frederick Arm, Cardero Channel and Hole in the Wall.
F. S. Deal	Sechelt	Alert Bay District, to extend from Adams River to Cape Scott, and on the opposite shore from the east end of Cracroft Island to Cape Caution, including intervening water.
Arthur Newlands	Welcome Pass, Pender Harbour.	Pender Harbour District, including Bute Inlet, Calm Channel, Lewis Channel, Malaspina Strait to Gower Point at the entrance to Howe Sound. Also Ramsay Arm, Toba Inlet, Homfray Channel, Desolation Sound, Malaspina Inlet, Powell Lake, Jervis Inlet, Sechelt Inlet and waters immediately connected therewith.
W. M. Galbraith	Duncan's Station	The Cowichan River, from its source to Clemlets Bridge on the south branch, and to the bridge at the stone church on the north branch, also Coksiloh River and Cowichan Lake.

LIST OF OFFICERS IN CHARGE OF GOVERNMENT FISH HATCHERIES, 1915-16.

Name.	P.O. Address.	Province.	Rank.
Ogden, Alfred	Bedford	Nova Scotia	Officer in charge Government Fish Hatchery.
McDiarmid, Donald	N. E. Margaree	"	"
Burgess, Frank	Windsor	"	"
Burton, L. J	Middleton	"	"
Mowat, Alex	Campbellton	New Brunswick	"
McCluskey, F. J	Grand Falls	"	"
Sheasgreen, Wm.	South Esk	"	"
*Britain, B. B	St. John West	"	"
McAfee, Geo	R. F. D. No. 4, Lakewood	"	"
Holroyd, A. W	Winslow Station	P.E. Island	"
Lindsay, R. C	Gaspé	Quebec	"
Meilleur, Jos.	Mont Tremblant	"	"
Audet, L. A	Magog	"	"
Elliot, Jos	St. Alexis des Monts	"	"
Catellier, J. N	Tadoussac	"	"
Belknap, W. G	Baldwin's Mills	"	"
McLeod, A. W	Belleville	Ontario	"
Parker, Wm.	Sandwich	"	"
Parker, Ray	Kenora	"	"
McNab, A. J	Port Arthur	"	"
Eldridge, W. J	Wiarton	"	"
Laschinger, A. G.	Sarnia	"	"
McDougall, A	Southampton	"	"
Clark, Matthew	Collingwood	"	"
Paulson, C. P	Selkirk	Manitoba	"
Grenon, Jos. O.	Winnipegosis	"	"
Craig, Samuel	Fort Qu'Appelle	Saskatchewan	"
Rodd, R. T	Banff	Alberta	"
Robertson, Alex.	Harrison Springs	British Columbia	"
Mitchell, D.S	Tappen	"	"
Graham, T. W	Lillooet	"	"
Gibbs, H. L	Hazelton	"	"
Martin, J. E.	Tofine	"	"
Bothwell, David	Kildonan	"	"
Castley, J. H	Duncan	"	"
Crawford, H. C.	Fort St. James	"	"
Hainer, J. N	Rivers Inlet	"	"
Catt, James	Lakelse	"	"
Ogilvie, L	Gerrard	"	"

* St. John Salmon Retaining Pond.

LIST OF OFFICERS IN CHARGE OF GOVERNMENT OWNED PATROL BOATS (SEASON 1916.)

NOVA SCOTIA.

Officer in Charge.	Boat.	District Patrolled.
Young, E. D.	"C"	District No. 2.
Fanning, M. B.	"E"	"
Blackford, H.	"A"	District No. 3.
Bateman, John.	"B"	"
Blades, Chas.	"F"	"
Smith, A. H.	* "Iroquois"	"

NEW BRUNSWICK.

Green, Coleman	"G"	District No. 1.
Worrell, Robert.	"Sea Gull"	"
Mitchell, A. E.	"Phalarope"	"
Goodwin, C. A.	"Hudson"	District No. 2.

PRINCE EDWARD ISLAND.

McCarthy, J. B.	"D"	
Wrayton, M. B.	"J. L. Nelson"	

QUEBEC.

Arsenault, W. A.	"Waldron W"	Magdalen Islands.
Bernier, Dr. J. E.	"Princess"	Gulf of St. Lawrence.

MANITOBA.

Bryan, H.	"G. H. Bradbury"	Lake Winnipeg.

BRITISH COLUMBIA.

Crichton, J. E.	"Fispa"	District No. 1.
Copp, S. M.	"Merry Sea"	"
Hembrough, Thos.	"Swan"	"
Dauphinee, Wm.	"Elk"	"
Waddell, S.	"Foam"	"
Boyd, James.	"Bonila"	District No. 2.
Norrie, Stewart.	"Kayex"	"
Dawe, Thomas.	"Hawk"	"
Sangstad, G.	"Merlin"	"
Adamson, W. T.	"Linnett"	"
Widsten, John	"Kingfisher"	"
Haan, John.	"Gannett"	"
Lloyd, A. F.	"Heron"	District No. 3.
Wood, J. B.	"Egret"	"
McIndoo, C. E.	"Gull"	"
Newlands, A.	"Cohoe"	"
Laird, F. C.	"Alcedo"	"
Copp, A. O.	"Black Raven"	"
Caddell, A.	"Semiahmo"	"

* Hired for the season.

Orders in Council respecting Parliamentary Under-Secretary of State for External Affairs, Parliamentary Secretary of the Department of Militia and Defence, and Ministry of Overseas Military Forces.

P.C. 1719.

[41]

AT THE GOVERNMENT HOUSE AT OTTAWA.

SATURDAY, the 15th day of July, 1916.

PRESENT:

THE DEPUTY OF HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

Whereas the Right Honourable the Prime Minister submits that by reason of the war his duties as Prime Minister and as Secretary of State for External Affairs have increased the demands upon his time and energies to such an extent that the efficient and prompt attendance to such duties makes necessary the assistance of a Parliamentary Under-Secretary;

Therefore the Deputy of the Governor General in Council is pleased to authorize and doth hereby authorize the appointment of a Parliamentary Under-Secretary of State for External Affairs during the continuance of the war.

The Deputy of the Governor General in Council, under and in virtue of the provisions of the War Measures Act, 1914, is further pleased to make the following orders and regulations and the same are hereby made and enacted accordingly:—

REGULATIONS RESPECTING THE PARLIAMENTARY UNDER-SECRETARY OF STATE FOR EXTERNAL AFFAIRS.

1. During the continuance of the present war the Governor in Council may from time to time appoint a Senator or a Member of the House of Commons to be Parliamentary Under-Secretary of State for External Affairs.

2. The Parliamentary Under-Secretary shall, with respect to the Department of External Affairs, perform such parliamentary duties as may from time to time be assigned to him by the Governor in Council.

3. The Parliamentary Under-Secretary shall, subject to such instructions as may from time to time be issued by competent authority, assist the Prime Minister in administering the Department of External Affairs, and may, subject to the approval of the Prime Minister, conduct such official communications between the Government of Canada and the Government of any other country in connection with the external affairs of Canada, and perform such other duties in the said department as from time to time may be directed.

4. In the absence of the Prime Minister, the Parliamentary Under-Secretary shall, subject to the direction and approval of the Acting Prime Minister for the time being, preside over and administer the Department of External Affairs; and in such case he shall have authority to report to and make recommendations to the Governor in Council through the Acting Prime Minister.

5. Until Parliament otherwise provide, the Parliamentary Under-Secretary of State for External Affairs shall hold his office, commission, or employment without any salary, fees, wages, allowances, emolument or other profit of any kind attached thereto.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2576.

Certified copy of a Report of the Committee of the Privy Council, approved by His Excellency the Administrator on the 21st October, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable Sir Robert Laird Borden, the Prime Minister, advise that, under the regulations established by the Order in Council of the 15th July (P.C. No 1719), Hugh Clark, member of the House of Commons for the Electoral District of North Bruce, be appointed Parliamentary Under-Secretary of State for External Affairs, during the continuance of the present war.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 1720.

AT THE GOVERNMENT HOUSE AT OTTAWA.

Saturday, 15th day of July, 1916.

PRESENT:

The Deputy of His Royal Highness the Governor General in Council.

Whereas owing to the war the duties of the Minister of Militia and Defence have enormously increased, and frequently occasion his absence from the seat of Government as well when Parliament is in session as during the recess;

And whereas in the absence of the Minister of Militia and Defence it is often necessary to appoint a member of the Cabinet to act as Minister of Militia and Defence, and, as the same member of the Cabinet cannot always be so appointed, there is a great danger of a lack of uniformity and continuity in the oversight and administration of the Department of Militia and Defence.

Therefore the Deputy of His Royal Highness the Governor General in Council is pleased—during the continuance of the present war—to authorize the appointment of a Parliamentary Secretary who shall assist the Minister of Militia and Defence, and within certain limits shall act for him during his absence, and the said appointment is hereby authorized accordingly.

The Deputy of His Royal Highness the Governor General in Council, under the provisions of the War Measures Act, 1914, is further pleased to make and enact the following orders and regulations respecting the Parliamentary Secretary of the Department of Militia and Defence:—

1. During the continuance of the present war the Governor in Council may from time to time appoint a Senator or a Member of the House of Commons of Canada to be Parliamentary Secretary of the Department of Militia and Defence.

2. The Parliamentary Secretary shall, with respect to the Department of Militia and Defence, perform such parliamentary duties as may from time to time be assigned to him by the Governor in Council.

3. The Parliamentary Secretary shall *ex officio* be a member of the Militia Council, and in the absence of the Minister he shall act as chairman thereof.

4. In the absence of the Minister from Ottawa, the Parliamentary Secretary shall preside over and administer the Department of Militia and Defence, but he shall not make any change in the policy of the department without the authority of the Governor in Council.

5. In the absence of the Minister of Militia and Defence, and subject to the approval of the Prime Minister, the Parliamentary Secretary shall have authority to report to and make recommendations to the Governor in Council through the Prime Minister.

6. The Parliamentary Secretary shall perform such other duties as may be assigned to him by the Governor in Council.

7. Until Parliament otherwise provide, the Parliamentary Secretary shall hold his office, commission, or employment without any salary, fees, wages, allowances, emolument or other profit of any kind attached thereto.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 1730.

Certified Copy of a Report of the Committee of the Privy Council, approved by the Deputy of His Royal Highness the Governor General on the 19th July, 1916.

The Committee of the Privy Council, on the joint recommendation of the Right Honourable the Prime Minister and the Minister of Militia and Defence, advise that, under the regulations established by the Order in Council (P.C. 1720), approved on the 15th day of July, 1916, Fleming Blanchard McCurdy, member of the House of Commons for the Electoral District of Shelburne and Queens, be appointed Parliamentary Secretary of the Department of Militia and Defence, during the continuance of the present war.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2651.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Administrator on the 28th October, 1916.

The Committee of the Privy Council have had before them a report dated 26th October, 1916, from the Right Honourable the Prime Minister, submitting that he has had under consideration the subject of the administration of the overseas forces of Canada, and the direction and control of the expenditure abroad in connection therewith..

The Prime Minister states that in view of the unexpected length of the war and the unprecedented efforts which are being exerted by Canada in common with the rest of the Empire for the defence of His Majesty's Dominions, and which it is unnecessary here to recapitulate, it is apparent that adequate measures should be taken to provide for the situation which has arisen and is developing. Moreover the expenditure necessarily involved in the organization, maintenance, equipment, and direction overseas of these forces, is very great, and there is especial reason for using every effort to assure not only the highest degree of efficiency and the most thorough and prompt co-operation of the overseas forces of Canada with those of the Mother Country, and of the other Dominions of the Empire, but also the most economical and careful administration of the means which are appropriated for the purpose.

The Prime Minister is informed that before the 1st November, 1916, the forces despatched by Canada for overseas service in Europe will number not less than 256,000.

Enlistment is proceeding; there are large forces in training in Canada which will be despatched as soon as they are prepared, and the responsibility connected with the raising, equipment, training, outfitting, and transporting of these troops is in itself so great that it seems advisable to relieve the Department of Militia and Defence of the administration of the forces overseas and to establish a ministry in London, immediately in touch with His Majesty's Government and conveniently situated with relation to the theatre of effective operations, to be charged with the administration of the military affairs overseas for which Your Excellency's Government is responsible, as well as the expenditure connected with those affairs and the negotiations and arrangements incident to that branch of the service.

For these reasons, the Prime Minister recommends for the sanction of Your Excellency—in the execution of the powers conferred by the War Measures Act—the draft regulations or ordinance herewith submitted.

The Committee concur in the foregoing and submit the same for approval.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

ORDINANCE FOR THE CONSTITUTION OF THE MINISTRY OF OVERSEAS MILITARY FORCES OF CANADA.

1. There shall be, so long as the present European war continues and thereafter until otherwise directed by the Governor in Council, a Minister of Overseas Military Forces of Canada, who shall be charged with the control of and shall be responsible for the administration of the affairs of the military forces of Canada in the United Kingdom and on the continent of Europe; the ordnance, arms, ammunition armouries, stores, munitions, and habiliments of war belonging to Canada in the United Kingdom and on the continent of Europe appropriated for the use of the overseas military forces of Canada and all expenditure incurred in the United Kingdom and elsewhere in Europe for or in respect of the overseas military forces of Canada; the aforesaid powers and duties of the administration to include without limiting their generality, all powers and duties in connection with the troops, property, and expenditure aforesaid heretofore exercised by or charged upon the Minister of Militia and Defence.

2. The Minister shall, for the convenience of administration, and in order to expedite the transaction of the business with which he is charged, ordinarily reside and discharge his duties in London and in urgent matters of importance which would generally be subject to consideration and direction, upon the Minister's report, by the Governor in Council, the Minister may, if the time or means for communication do not admit of antecedent authority from the Governor in Council, sanction provisionally such measures as may seem to him advisable, subject, however, to report and the confirmation of the Minister's action by the Governor in Council.

3. The Minister shall, moreover, be charged with the negotiations on the part of the Government of Canada, as occasion may require, with His Majesty's Government, in all matters connected with the Government, command, and disposition of the overseas forces of Canada, and such arrangements as may be advisable for co-ordinating their operations and services with those of His Majesty's troops, and generally for the purpose of utilizing the overseas forces of Canada in the most effective manner for the purposes of the war.

4. The Minister shall, moreover, execute such further powers and perform such other duties as may be from time to time conferred upon or assigned to him by the Governor in Council.

5. The Minister may for the purposes aforesaid establish such organization as may be found necessary and adequate, and he may, subject to the approval of the Governor in Council, appoint such officers and clerks to assist in the work of his Ministry as he

deems necessary, with such grades in the Civil Service of Canada as may be prescribed and such officers and clerks shall not be subject to examination under the Civil Service Act.

6. There may be an advisory council, consisting of such members as the Governor in Council may appoint, to advise the Minister as to matters relating to the affairs and property hereby committed to his administration.

7. All recommendations of the Minister for submission to the Governor in Council shall be transmitted through the President of the Privy Council.

8. Until Parliament otherwise provides, the Minister shall hold his office, commission, or employment without any salary, fees, wages, allowances, emolument, or other profit of any kind attached thereto.

9. The expression "Minister" shall, for the purposes of this ordinance, if there be nothing repugnant in the subject-matter or context, mean the Minister of Overseas Military Forces of Canada.

P.C. 2656.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Administrator on the 31st October, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable Sir Robert Laird Borden, the Prime Minister, advise that, pursuant to the provisions of the ordinance of His Excellency the Administrator in Council of the 28th day of October, 1916, Honourable Sir George Halsey Perley, be appointed Minister of Overseas Military Forces from Canada in the United Kingdom, to exercise the functions and perform the duties of the said office as set out in the said Ordinance.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

Papers Relating to the Imperial War Conference, 1917.

[42]

Paraphrase of Telegram from Mr. Long to the Governor General.

LONDON, December 20, 1916.

Canadian Government will have received through Reuters full report of Prime Minister's statement respecting summoning of Conference. Your Ministers will doubtless concur as to the desirability of this as soon as practicable. The state of public business in some of the Dominions I realize may be a difficulty, and I should be glad to have early expression of your Ministers' views as to the date on which it would be possible for representatives of Canadian Government to attend, and also as to the questions which they would suggest for discussion with a view of attaining the objects indicated by the Prime Minister.

After collecting views of all Dominions I will communicate with you further.

LONG.

Extract from a Report of the Right Honourable Lloyd George's Speech of the 19th of December, 1916, in the House of Commons.

AN IMPERIAL WAR CONFERENCE.

"Now coming to the Dominions, the Ministers have repeatedly acknowledged the splendid assistance which the Dominions have given of their own free will to the Old Country in its championship of the cause of humanity. They have recognized that our fight is not a selfish one, that it is not merely a European quarrel, and that there were great world issues which their children were as concerned in as ours. The new Administration is just as full of gratitude as the old for the superb valour which our kinsmen have shown in so many striking fields, but I want to say that we feel that the time has come when the Dominions ought to be more formally consulted as to the progress and course of the war, as to the steps that ought to be taken to secure victory, and as to the business methods of garnering its fruits.

"We propose, therefore, at an early date, to summon an Imperial Conference to place the whole position before the Dominions, to take counsel with them as to what further action we can take together in order to achieve an early and complete triumph for the ideals which they share with us."

Paraphrase of Telegram from Mr. Long to the Governor General.

LONDON, December 25, 1916.

I wish to explain that what is contemplated by His Majesty's Government is not a session of the ordinary Imperial Conference but a special War Conference of

the Empire. His Majesty's Government therefore invite your Prime Minister to attend a series of special and continuous meetings of the War Cabinet in order to consider urgent questions affecting prosecution of the war, the possible conditions on which in agreement with our Allies we could assent to its termination, and the problems which will then immediately arise.

Your Prime Minister, for the purpose of these meetings, would be a member of the War Cabinet.

In view of the extreme urgency of the subjects of discussion, as well as of their supreme importance, it is hoped that your Prime Minister may find it possible, in spite of serious inconvenience involved, to attend at an early date, not later than end of February. While the presence of your Prime Minister himself is earnestly desired by His Majesty's Government, they hope that if he sees insuperable difficulties, he will carefully consider the question of nominating a substitute, as they would regard it as a serious misfortune if any Dominions were left unrepresented.

Please make arrangements to publish this on Wednesday morning as it will be published here at that time.

LONG.

Paraphrase of Telegram from Mr. Long to the Governor General.

LONDON, *January* 1, 1917.

I would like to make it clear that if your Prime Minister desires the presence at War Cabinet of colleagues of whose special knowledge he wishes to avail himself the latter will be welcome, though the Prime Minister alone, of course, will be a member of War Cabinet. Further, if your Ministers should desire to discuss other questions of common interest not directly affecting the conduct of the war, or less appropriate for discussion at War Cabinet, His Majesty's Government are prepared to arrange facilities for conferring on any other questions that await decision between Dominions and Imperial Government, although it may not be possible for the Prime Minister to preside.

LONG.

Paraphrase of Cypher Telegram from His Excellency the Governor General to the Colonial Secretary.

OTTAWA, ONT., January 5, 1917.

My Prime Minister and his colleagues have taken into earnest consideration the very important announcement set forth in your telegram of 25th December, which has since been made public. He and his colleagues concur in the view that it is his duty to attend this Conference without regard to any difficulties here which his absence may occasion. With that view Parliament has been summoned for the 18th instant in order that business may be facilitated and advanced as much as possible before his departure. He would greatly appreciate information of a more definite character as to the questions to be considered especially those touching the prosecution of the war and conditions of peace so far as they have been considered. He would also be grateful for earliest possible information as to latest date to which he may delay his departure for England and as to probable length of proposed series of meetings if that has been considered.

DEVONSHIRE.

IMPERIAL WAR CONFERENCE, 1917

EXTRACTS FROM MINUTES OF PROCEEDINGS

AND PAPERS LAID BEFORE THE CONFERENCE

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY J. DE L. TACHE
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1917

[No. 42a—1917.]

CANADA,
DOMINIONS No. 319.

DOWNING STREET, 28th May, 1917.

MY LORD DUKE,—I have the honour to transmit to Your Excellency, to be laid before your Ministers copies of a Parliamentary Paper (Cd. 8566) containing extracts from the Minutes of the Proceedings of the Imperial War Conference, 1917, and Papers laid before the Conference.

I have the honour to be,

My Lord Duke,

Your Grace's most obedient, humble servant,

WALTER H. LONG.

Governor General
His Excellency
The Duke of Devonshire, K.G., G.C.M.G., G.C.V.O.,
etc., etc., etc.

PRELIMINARY NOTE.

Meetings of the Imperial War Conference took place on various dates between 21st March and 27th April, 1917, being held, as a rule, on alternate days to those of the meetings of the Imperial War Cabinet.

A great part of the proceedings was of a highly confidential character and entirely unsuitable for publication, at any rate during the War. Other parts, though not so essentially confidential in their nature, were intermingled with matter which, owing to the circumstances of the moment, must for the present be kept confidential.

The procedure adopted in the present volume has been to publish as many of the Resolutions passed by the Conference as possible, but only the discussions and papers on subjects which are not of a confidential character. Omissions are indicated by asterisks.

Colonial Office,
May, 1917.

I. RESOLUTIONS AGREED TO BY THE CONFERENCE.

The following Resolutions were unanimously agreed to by the Conference:—

I.

* * * * * * * *

II.

Uniformity of Equipment.

(*Third Day; Monday, March* 26.)

That this Conference, recognizing the importance of assimilating as far as possible the military stores and equipment of the Imperial forces throughout the Empire, recommends that an expert Committee representative of the military authorities of the United Kingdom, the Dominions, and India be appointed as early as possible to consider the various patterns in use with a view to selecting standard patterns for general adoption as far as the special circumstances of each country admit.

III.

Training of Ordnance Personnel.

(*Third Day; Monday, March* 26.)

This Conference is of opinion that it is desirable that the ordnance personnel of the military organizations of the Empire should, as far as possible, be trained on the same methods and according to the same principles, and that to secure this end selected officers of the ordnance service from all parts of the Empire should be attached for adequate periods to the Imperial Ordnance Department.

IV.

Naval Defence.

(*Fifth Day; Friday, March* 30.)

That the Admiralty be requested to work out immediately after the conclusion of the War what they consider the most effective scheme of Naval Defence for the Empire for the consideration of the several Governments summoned to this Conference, with such recommendations as the Admiralty consider necessary in that respect for the Empire's future security.

V.

Trade Commissioner Service.

(*Seventh Day ; Wednesday, April* 4. *See* p. 21.)

That the Imperial War Conference welcomes the proposed increase of the Board of Trade service of Trade Commissioners and its extension throughout the British

Empire in accordance with the recommendations of the Dominions Royal Commission, and recommends that the Governments concerned should co-operate so as to make that service as useful as possible to the Empire as a whole, especially for the promotion of Inter-Imperial Trade.

VI.

Patents.

(*Seventh Day; Wednesday, April* 4.)

The Imperial War Conference commends the proposals of the Board of Trade in the Memorandum on Patents and Trade Marks to the careful consideration of the several constituent Governments of the Empire.

VII.

Representation of India at future Imperial Conferences.

(*Eighth Day; Friday, April* 13. *See* p. 28.)

That the Imperial War Conference desires to place on record its view that the Resolution of the Imperial Conference of 20th April, 1907, should be modified to permit of India being fully represented at all future Imperial Conferences, and that the necessary steps should be taken to secure the assent of the various Governments in order that the next Imperial Conference may be summoned and constituted accordingly.

VIII.

Care of Soldiers' Graves.

(*Eighth Day; Friday, April* 13. *See* p. 28.)

The Conference, having considered the Minute addressed to the Prime Minister on the 15th March, 1917, by His Royal Highness the Prince of Wales, concurs in the proposals made therein, and humbly prays His Majesty to constitute by Royal Charter an Imperial War Graves Commission for the purposes stated by His Royal Highness, and along the lines therein set forth as embodied in the draft charter submitted to the Conference. The Conference places on record its very deep appreciation of the generous action of the French Government in alloting in perpetuity the land in that country where our men are buried, and urges that similar arrangements should be made, if possible, in the terms of peace with all Governments—Ally, Enemy, or Neutral—for a similar concession in Gallipoli, Mesopotamia, Africa, and all other theatres of war. The Conference desires to record its grateful appreciation of the work already done by the Prince of Wales and his committee in caring for the graves of those who have fallen in the common cause of the Empire, and its satisfaction that His Royal Highness has consented to become the President of the permanent Commission.

IX.

Constitution of the Empire.

(*Ninth Day; Monday, April* 16. *See* p. 46.

The Imperial War Conference are of opinion that the readjustment of the constitutional relations of the component parts of the Empire is too important and intricate a subject to be dealt with during the war, and that it should form the subject of a special Imperial Conference to be summoned as soon as possible after the cessation of hostilities.

They deem it their duty, however, to place on record their view that any such readjustment, while thoroughly preserving all existing powers of self-government and complete control of domestic affairs, should be based upon a full recognition of the Dominions as autonomous nations of an Imperial Commonwealth, and of India as an important portion of the same, should recognize the right of the Dominions and India to an adequate voice in foreign policy and in foreign relations, and should provide effective arrangements for continuous consultation in all important matters of common Imperial concern, and for such necessary concerted action, founded on consultation, as the several Governments may determine.

X.

Naturalization.

(*Tenth Day; Wednesday, April* 18. *See* p. 70.)

The Conference recognizes the desirability and importance of securing uniformity of policy and action throughout the Empire with regard to naturalization, and it is resolved that the proposals set forth in the Memorandum submitted by the Home Office be commended to the consideration of the respective Governments summoned to the Conference.

XI.

Earl Grey's Scheme for a Dominion House in Aldwych.

(*Tenth Day; Wednesday, April* 18. *See* p. 88.)

The Conference, in expressing to Earl Grey its deep appreciation and warm thanks for the great interest that he has taken in the proposal to secure the Aldwych site, and to erect thereon a building suitable for the purposes of the Dominions, considers that it is not practicable to proceed with the proposal under existing conditions or in the immediate future.

XII.

Care of Soldiers' Graves.

(*Eleventh Day; Monday, April* 23. *See* p. 94.)

That the Imperial War Graves Commission be requested as soon as possible after their appointment and organization to prepare an estimate of the probable cost of carrying on the work entrusted to them and to submit the same to the Governments of the United Kingdom and Oversea Dominions with their recommendation as to the proportion that should be borne by each.

XIII.

Imperial Mineral Resources Bureau.

(*Eleventh Day; Monday, April* 23.)

That it is desirable to establish in London an Imperial Mineral Resources Bureau, upon which should be represented Great Britain, the Dominions, India, and other parts of the Empire.

The Bureau should be charged with the duties of collection of information from the appropriate Departments of the Governments concerned and other sources regarding the mineral resources and the metal requirements of the Empire, and of

advising from time to time what action, if any, may appear desirable to enable such resources to be developed and made available to meet the metal requirements of the Empire.

That the Conference recommends that His Majesty's Government should, while having due regard to existing institutions, take immediate action for the purpose of establishing such a Bureau, and should as soon as possible submit a scheme for the consideration of the other Governments summoned to the Conference.

XIV.

Production of Naval and Military Material, Munitions, and Supplies.

(Twelfth Day; Tuesday, April 24.)

That this Conference, in view of the experience of the present war, calls attention to the importance of developing an adequate capacity of production of naval and military material, munitions, and supplies in all important parts of the Empire (including the countries bordering on the Pacific and Indian Oceans) where such facilities do not presently exist and affirms the importance of close co-operation between India, the Dominions, and the United Kingdom with this object in view.

XV.

Double Income Tax.

(Thirteenth Day; Wednesday, April 25. See p. 103.)

The present system of Double Income Taxation within the Empire calls for review in relation—

(i) to firms in the United Kingdom doing business with the Overseas Dominions, India, and the Colonies;

(ii) to provide individuals resident in the United Kingdom who have capital invested elsewhere in the Empire, or who depend upon remittances from elsewhere within the Empire; and

(iii) to its influence on the investment of capital in the United Kingdom, the Dominions and India, and to the effect of any change on the position of British capital invested abroad.

The Conference, therefore, urges that this matter should be taken in hand immediately after the conclusion of the War, and that an amendment of the law should be made which will remedy the present unsatisfactory position.

XVI.

Development and Control of Natural Resources.

(Thirteenth Day; Wednesday, April 25. See p. 116.)

Having regard to the experience obtained in the present war, this Conference records its opinion that the safety of the Empire and the necessary development of its component parts, require prompt and attentive consideration, as well as concerted action, with regard to the following matters:—

(1) The production of an adequate food supply and arrangements for its transportation when and where required, under any conditions that may reasonably be anticipated.

(2) The control of natural resources available within the Empire, especially those that are of an essential character for necessary national purposes, whether in peace or in war.

(3) The economical utilization of such natural resources through processes of manufacture carried on within the Empire.

The Conference commends to the consideration of the Governments summoned thereto the enactment of such legislation as may assist this purpose.

XVII.

Control of Imports after the War from present Enemy Countries.

(*Thirteenth Day; Wednesday, April* 25. *See* p. 121.)

The Imperial War Conference consider it desirable, with a view to prevent dumping or any other mode of unfair competition from present enemy countries during the transition period after the War, that the several Governments of the Empire, while reserving to themselves freedom of action in any particular respect, take power to control the importation of goods originating in such countries into the Empire for a period of twelve months after the War.

XVIII.

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XXI.

Imperial Preference.

(*Fourteenth Day; Thursday, April* 26. *See* p. 123.)

The time has arrived when all possible encouragement should be given to the development of Imperial resources, and especially to making the Empire independent of other countries in respect of food supplies, raw materials, and essential industries. With these objects in view this Conference expresses itself in favour of:—

(1) The principle that each part of the Empire, having due regard to the interests of our Allies, shall give specially favourable treatment and facilities to the produce and manufactures of other parts of the Empire.

(2) Arrangements by which intending emigrants from the United Kingdom may be induced to settle in countries under the British flag.

XXII.

Reciprocity of Treatment between India and the Self-governing Dominions.

(*Fifteenth Day; Friday, April* 27. *See* p. 126.)

That the Imperial War Conference, having examined the Memorandum on the position of Indians in the Self-governing Dominions presented by the Indian repre-

sentatives to the Conference, accepts the principle of reciprocity of treatment between India and the Dominions and recommends the Memorandum to the favourable consideration of the Governments concerned.

XXIII.

Address to His Majesty the King.

(*Fifteenth Day; Friday, April* 27. *See* p. 130.)

That His Majesty the King be asked to receive the Members of the Imperial War Conference now in Session, who desire to present a humble address to His Majesty.

XXIV.

Temptations of Oversea Soldiers.

(*Fifteenth Day; Friday, April* 27.)

That the attention of the authorities concerned be called to the temptations to which our soldiers when on leave are subjected, and that such authorities be empowered by legislation or otherwise (1) to protect our men by having the streets, the neighbourhood of camps, and other places of public resort, kept clear, so far as practicable, of women of the prostitute class, and (2) to take any other steps that may be necessary to remedy the serious evil that exists.

XXV.

Concluding Resolution.

(*Fifteenth Day; Friday, April* 27. *See* p. 132.)

The Members of the Conference representing India and the Oversea Dominions desire before they separate to convey to the Secretary of State for the Colonies their earnest and sincere appreciation of his labours in preparing for, and presiding over, the Conference.

They desire also to put on record their deep sense of gratitude for the many courtesies which they have received from the Prime Minister and the other members of His Majesty's Government, as well as for the generous hospitality which has been extended to them by the Government and people of the United Kingdom.

II. EXTRACTS FROM MINUTES AND PROCEEDINGS.

FIRST DAY.

Wednesday, 21st March, 1917.

The Imperial War Conference met at the Colonial Office at 11.30 a.m.

PRESENT:

The Right Honourable WALTER H. LONG, M.P., Secretary of State for the Colonies (Chairman of the Conference).

Canada.

The Right Honourable Sir R. BORDEN, G.C.M.G., Prime Minister.

The Honourable Sir G. H. PERLEY, K.C.M.G., Minister of Overseas Military Forces.

The Honourable R. ROGERS, Minister of Public Works.

The Honourable J. D. HAZEN, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Hon. W. F. MASSEY, Prime Minister.

The Right Honourable Sir JOSEPH WARD, Bart., K.C.M.G, Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. SMUTS, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. MORRIS, K.C.M.G., Prime Minister.

India.

The Right Honourable A. CHAMBERLAIN, M.P., Secretary of State for India.

Sir J. S. MESTON, K.C.S.I., Lieutenant-Governor of the United Provinces.

Colonel His Highness the MAHARAJA OF BIKANER, G.C.S.I., G.C.I.E., A.D.C.

Sir S. P. SINHA, Member Designate of the Executive Council of the Governor of Bengal.

Mr. H. C. M. LAMBERT, C.B., Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. Fiddes, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.

Mr. A. D. Steel-Maitland, M.P., Parliamentary Under Secretary of State for the Colonies.

Lieutenant-Colonel W. Dally Jones, Assastant Secretary to the War Cabinet; and

Private Secretaries.

Opening Address and Replies.

Mr. Long observed that it was his privilege as Secretary of State for the Colonies to offer a very warm and cordial welcome to the representatives of the Dominions and India. He greatly regretted, as all did, the absence of Australia; a very serious blow to their work. It was due entirely to difficulties which had compelled Mr. Hughes to have a general election, which, of course, prevented him from coming. He desired, specially, to welcome the representatives of India, who, by their presence at this Imperial Conference, gave it a character which it had never possessed before, and it was, he thought, a happy augury that the Secretary of State for India should be a son of the great Imperial statesman who so well and truly laid the foundations of the Imperial Conference.

Yesterday had been held the first meeting of the first Imperial Cabinet which has ever assembled in the Empire. To-day they met at what was the corollary of the Imperial Cabinet, namely the Imperial Conference. They were engaged in a War the greatest and the most terrible in history, and their object both in the Cabinet and in the Conference was to deal with the immediate war problems, with those which will arise on the conclusion of peace, and with any other questions which it may seem desirable to discuss or decide, as being of Imperial interest, without delay.

The War had entailed great sacrifices, and laid upon us a vast common burden. These had been borne cheerfully, first because we realize that sacrifice is essential if we are successfully to champion our great cause, and secondly because our peoples realize that only out of the community of sacrifice and suffering can come the great lessons which will teach us how to bring about that re-birth of Empire which must be the result of the great struggle.

He then referred to the subjects to be discussed in the conference. An advance programme had already been circulated comprising subjects of which notice had already been given, or which it was thought probable here that there would be a desire to discuss. No doubt other subjects would be added, and it was for the Conference to decide what questions should be discussed, and in what order. Some problems appeared too great for decision when we were at war, and when it was impossible for the Prime Minister and many of his colleagues to attend regularly at the Conference, but he hoped that, even if decision was impossible, the Conference would not consider itself debarred from very full discussion. They had a great opportunity, one which might not soon recur. He was satisfied that Germany was making most complete preparations for competition when the War is over. In the field of battle we had been found unprepared, but he hoped that we should not again be caught unprepared for those peaceful conflicts in which we should certainly be engaged so soon as the War is over, and in which we ought to be prepared to do something more than hold our own. And therefore he repeated that discussion round the table must be helpful.

The Conference, he suggested, should be governed by the general rules which governed the last Imperial Conference. He should ask the Conference to decide as to the attendance of the Press and as to the record to be kept of its proceedings. He

thought it probable that the greater part of the work would refer to matters of such a confidential character in connection with the War that it will be impossible to make the proceedings public, or even to refer to the actual subjects. But he suggested that the rules as to voting by States should be maintained; that all members of the Conference should be permitted to speak in the discussions; that the rule as to the Press should be maintained; and that the Conference should have in attendance a shorthand writer to take a complete record, and he was prepared, if the Conference approved, to supervise the issue to the Press of a short summary of proceedings on each day of meeting.

In conclusion he repeated his cordial welcome, and expressed his great pride at presiding over an Imperial Conference which comprised representatives of all the Dominions—save Australia—and the Indian Empire, and he hoped that the proceedings would be harmoniously conducted, as he was sure they would, and be of real use to the Empire at large.

Sir R. Borden, replying, thanked Mr. Long for his welcome, and concurred in his expression of regret with regard to the absence of Australian representatives, and of gratification at the presence of representatives from India. Referring to Mr. Long's remarks about the sacrifices made by the Empire in the War, he spoke of Canada's determination to carry on the struggle. He said that he agreed generally in Mr. Long's proposals with regard to procedure, but he presumed a Committee would be appointed to prepare the agenda.

Mr. Massey, after thanking Mr. Long for his welcome, similarly expressed regret at the absence of Australian, and gratification at the presence of Indian representatives. He proceeded to refer to post-war trade as a question of pressing importance, and to the emigration of the population of the United Kingdom to other parts of the world. He hoped, he said, that inducements would be offered to keep them under the Flag. He also referred to the question of Double Income Tax, and hoped that it would come before the Conference.

General Smuts, after thanking Mr. Long for his welcome, said that he was sorry that no representatives from Australia were able to attend, and, in expressing his pleasure at seeing the Indian representatives present, observed that, in his opinion, only good could come from the inclusion of India in this Conference. Matters outside the War should not, he said, be settled at this Conference; for instance, the question of constitution of the Empire and economic policy in the future. Though these questions might be discussed, no decision should be come to, though this reservation was not necessary as regards merely transitional measures. This was General Botha's view, and we should, he insisted, turn our attention to matters which would help us to end the War.

Sir E. Morris, after thanking Mr. Long, agreed with General Smuts that many questions cannot now be settled, but suggested that the Conference should be placed in touch with industrial bodies, such as Chambers of Commerce, in order to study the development of the products of the Empire. He referred in this connection to the great amount of asbestos which went to Germany from Canada before the War, and of iron ore from Newfoundland.

Mr. A. Chamberlain thanked Mr. Long and other speakers for the cordial welcome they had extended to the representatives of India, observing that for the first time the Government of India enjoyed a full representation, and he hoped to see a precedent established for future co-operation. No better step could, he said, have been taken than to call India to these councils. After referring to the progress made by India in recent years, he suggested that questions concerning India's relations with

the Empire and affecting vitally her relations with the Dominions and the Empire generally, should come up for discussion, though not necessarily for any decision. Discussion should, he said, enable them to understand each other better. India had some claim to greater recognition than she has had—she had bled herself white at the beginning of the War to supply the deficiencies of the Empire in troops, arms, and guns.

India, he observed, was interested in the questions of Double Income Tax and Commercial Development. He also suggested that it might be useful to send Commercial Commissioners from the Dominions to India. He asked that the position of citizens of India in the Empire should be discussed. He was, he said, aware of the difficulties, but India would not be unreasonable. Only good could come of the Dominions speaking freely on their side and hearing India put her case.

Sir Joseph Ward said he regarded the Conference as next in importance from the point of view of the future of the Empire to the immediate work of the proper conduct of the War. While agreeing that General Botha's view should be fully respected, he was of opinion, with all deference to General Smuts, that it should not prevent the discussion now of matters affecting the Empire as a whole after the War. If, he said, we begin twelve months after the War to consider these questions we shall begin twelve months too late. New Zealand looked forward to getting a lead from the Conference, e.g., he hoped to see proposals to circumvent the enemy's insidious attacks in various directions, and among them those concerning vital trade interests of the Empire. If these questions are not to be discussed now, when, he asked, is the next Conference to be? He asked if the naval defence of the Empire could be considered, even if it was not possible to give effect to any suggestions or schemes. In this connection he referred to our dependency on the help of a friendly nation for sea protection in the Pacific. If that country's battleships were at any moment required for her own defence, we would, so far as the Pacific is concerned, be almost unrepresented by necessary fighting ships. He also referred to the advantage of having Indian representation at the Conference, and most warmly welcomed the change. India had done great work for the whole Empire during the War, and her representation at the Conference had been well and worthily won. It augured well for the future of the Empire's widespread interests.

He held that there should be a discussion concerning the value of the Pacific to the Empire as a whole, and of the great interests concerned; we should, he said, look to the future, and not confine discussion merely to the territorial question.

He asked whether subventions to British mail steamers and cargo steamers would be discussed. In his view New Zealand ought to be brought within twenty-one days of London. It could be done. British shipping should be fostered, and it was necessary to consider the bearing on the future of the Pacific of the development that had taken place by the opening of the Panama route.

It would also be necessary to pass a Resolution on the Naturalization of Aliens after the War. Action in all parts of the Empire should be uniform, and there should be restrictions against people from enemy countries. Referring to the absence of Australian representation, he said that the want of unanimity might vitiate the results of the Conference. He asked whether resolutions passed at the Conference were to be sent out by cable to the Commonwealth—this, he thought, should be done —and if the Commonwealth were to be asked whether they agreed or not.

Order of Business.

Mr. LONG then suggested that the procedure of the Conference should be determined and the hours of meeting, and he asked how the agenda was to be settled. The Conference should also decide their policy with regard to the Press. One suggestion was that the Press should be excluded, but shorthand writers should attend to take notes.

Mr. CHAMBERLAIN said that he thought that nothing should be given to the Press beyond a statement that the Conference had met.

Sir R. BORDEN agreed, more especially in view of the proposal to cable to the Commonwealth.

It was decided that—

(1) Each Government should have one vote, but that every representative should have the right to speak.

(2) The Chairman should issue to the Press reports of the meetings of the Conference, but should give no details of the business done.

(3) The times of meeting should be Monday, Wednesday, and Saturday,* at 11 a.m.

(4) A Sub-Committee consisting of Sir R. Borden, Mr. Massey, General Smuts, and Sir J. Meston, with the Chairman, should determine the order of business.

With regard to the question of communicating the proceedings of the Conference to Australia, Mr. Long said that he was willing to cable confidentially to the Governor General of the Commonwealth that a particular subject would be under consideration, and to ask whether the Commonwealth wished to make any communication. A decision on this was deferred.†

Adjourned to Saturday, March 24.

SECOND DAY.

Saturday, 24th March, 1917.

The Imperial War Conference met at the Colonial Office at 11 a.m.

PRESENT:

The Right Honourable WALTER H. LONG, M.P., Secretary of State for the Colonies (Chairman of the Conference).

The Right Honourable the EARL of DERBY, K.G., G.C.V.O., Secretary of State for War.

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* NOTE.—This date was, at a subsequent meeting, altered to Friday.

† NOTE.—After further discussion at the Conference, Mr. Long sent the following telegram to the Governor-General of the Commonwealth:—

"30th March. I am arranging to telegraph to you, for the information of your Prime Minister, Resolutions passed by Imperial War Conference. Conference, while desiring to keep your Prime Minister informed of the progress of the work, is of the opinion that all the Resolutions should be kept confidential until the date decided on for common publication."

Canada.

The Right Honourable Sir R. Borden, G.C.M.G., Prime Minister.
The Honourable Sir G. H. Perley, K.C.M.G., Minister of Overseas Military Forces.
The Honourable R. Rogers, Minister of Public Works.
The Honourable J. D. Hazen, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. Massey, Prime Minister.
The Right Honourable Sir Joseph Ward, Bart., K.C.M.G., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. Smuts, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. Morris, K.C.M.G., Prime Minister.

India.

The Right Honourable A. Chamberlain, M.P., Secretary of State for India.
Sir J. S. Meston, K.C.S.I., Lieutenant-Governor of the United Provinces.
Colonel His Highness the Maharaja of Bikaner, G.C.S.I., G.C.I.E., A.D.C.
Sir S. P. Sinha, Member Designate of the Executive Council of the Governor of Bengal.

Mr. H. C. M. Lambert, C.B., Secretary to the Conference.
Mr. E. J. Harding, Junior Assistant Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. Fiddes, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.
Mr. A. D. Steel-Maitland, M.P., Parliamentary Under Secretary of State for the Colonies.
Sir R. H. Brade, K.C.B., Secretary of the War Office.
Major-General Sir John Steevens, K.C.B., K.C.M.G., Director of Equipment and Ordnance Stores.
Major-General Sir W. H. Birkbeck, K.C.B., C.M.G., Director of Remounts.
Brigadier-General E. H. Seymour, C.B., Deputy Director of Equipment and Ordnance Stores.
Lieutenant-Colonel W. Dally Jones, Assistant Secretary to the War Cabinet; and
Private Secretaries.

Loyal Resolution.

Chairman: At the first meeting of the last Conference the proceedings were commenced by passing the following resolution: "The Imperial Conference at their first meeting as their first act desire to present their humble duty to Your Majesty, and to assure you of the devoted loyalty of all portions of Your Majesty's Empire here represented." I do not know whether it would be the pleasure of the Conference to pass a similar resolution to-day. I do not think you could improve upon the terms of it.

Sir ROBERT BORDEN: I think it very appropriate indeed to send such a message and we could not improve upon it. I shall be very happy indeed to propose it.

Mr. MASSEY: If necessary, I will second.

CHAIRMAN: May I take it then that the Imperial War Conference passes that resolution, which, in that case, I will submit to His Majesty. *(Agreed.)*

Agenda.

CHAIRMAN: Then there is a report laid before the Conference of the Sub-Committee appointed at our preliminary meeting to draw up agenda. Is it your pleasure to adopt it, or does anybody desire to call attention to anything in it?

Mr. MASSEY: I understand this is not final—it may be altered.

CHAIRMAN: It may be altered; it really only suggests the business for the first three days, and must then, of course, be subject to revision if anything occurs. Is it your pleasure to adopt it or does any one desire to make any comment? We may take it that it is adopted then. Are you prepared to approve it?

Sir ROBERT BORDEN: On the understanding that any additional subjects may be suggested later on. It is provisional only.

CHAIRMAN: It is only provisional in order that we may know how to make proper arrangements a day or two in advance.

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SEVENTH DAY.

Wednesday, 4th April, 1917.

The Imperial War Conference met at the Colonial Office at 11 a.m.

PRESENT:

The Right Honourable WALTER H. LONG, M.P., Secretary of State for the Colonies (Chairman of the Conference).

The Right Honourable Sir ALBERT H. STANLEY, M.P., President of the Board of Trade.

Canada.

The Right Honourable Sir R. BORDEN, G.C.M.G., Prime Minister.
The Honourable Sir G. H. PERLEY, K.C.M.G., Minister of Overseas Military Forces.
The Honourable R. ROGERS, Minister of Public Works.
The Honourable J. D. HAZEN, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. MASSEY, Prime Minister.
The Right Honourable Sir JOSEPH WARD, Bart., K.C.M.G., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. SMUTS, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. MORRIS, K.C.M.G., Prime Minister.

India.

The Right Honourable A. CHAMBERLAIN, Secretary of State for India.
Sir J. S. MESTON, K.C.S.I., Lieutenant-Governor of the United Provinces.
Colonel His Highness the MAHARAJA OF BIKANER, G.C.S.I., G.C.I.E., A.D.C.
Sir S. P. SINHA, Member designate of the Executive Council of the Governor of Bangal.
Mr. H. C. M. LAMBERT, C.B., Secretary to the Conference.
Mr. E. J. HARDING, Junior Assisant Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. FIDDES, G.C.M.G., C.B., Under Secretary of State for the Colonies.
Mr. A. D. STEEL-MAITLAND, M.P., Parliamentary Under Secretary of State for the Colonies.
Sir H. LLEWELLYN SMITH, K.C.B., Permanent Secretary, Board of Trade.
The Right Honourable Sir MAURICE DE BUNSEN, G.C.M.G., G.C.V.O., C.B., Acting Assistant Under Secretary of State for Foreign Affairs.
Mr. H. FOUNTAIN, C.B., C.M.G., Assistant Secretary, Commercial Department, Board of Trade.
Mr. W. TEMPLE FRANKS, C.B., Comptroller-General of Patents, Board of Trade.
Sir W. H. CLARK, K.C.S.I., C.M.G., Comptroller-General of the Commercial Intelligence Department, Board of Trade.
Mr. PERCY ASHLEY, Board of Trade.
Lieutenant-Colonel W. DALLY JONES, Assistant Secretary to the War Cabinet; and
Private Secretaries.

Reply to Loyal Resolution.

CHAIRMAN: Gentlemen, I have a message from the King:—

> "The King thanks the Imperial War Conference for their assurance of the devoted loyalty of all parts of His Empire expressed through the representatives assembled at the Conference, and is glad to note that India is represented for the first time at the Council board. His Majesty is well aware of the feelings of affection and loyalty felt by His subjects in all parts of the Dominions to His Throne and Person, and He has received this resolution with particular pleasure as being the first act of the Imperial War Conference. The King is keenly interested in their deliberations, which He trusts may lead to the closer knitting together of all parts of His Empire in their united efforts to bring the present war to a victorious conclusion."

Mr. MASSEY: Will that be recorded, Mr. Long?

CHAIRMAN: Yes.

Representation of India at Future Imperial Conferences.

Sir JOSEPH WARD: May I suggest that it will become necessary before we conclude to rescind the Resolution of the Imperial Conference itself bearing upon the admission of the Indian representatives, because to-day we have the Indian representatives here, and they are here because this Conference is called, not under the name of the Imperial Conference, but under another name so as to admit of the representatives of India attending. Now, if some of the important subjects which affect India are to

come up at an ordinary Imperial Conference, the present is a Conference which should clear the road so as to enable those representatives to be summoned as members of the Imperial Conference, or otherwise an ordinary Imperial Conference is faced with the difficulty that there is on record now a Resolution bearing upon that matter which would prevent India being summoned to an Imperial Conference.

Mr. MASSEY: It seems to me on that very point that if any change is made it must be made by the Imperial Conference itself. This is not the Imperial Conference in the ordinary sense of the word, as Sir Joseph Ward pointed out, but this is an Imperial War Conference and I do not think it has a right to interfere with the proceedings of the other Conference.

Sir JOSEPH WARD: That is so, but could there not be an understanding arrived at with a view to this position, otherwise the next Imperial Conference would be faced with an initial difficulty that they cannot overcome. There ought to be an expression of opinion at the first meeting of the Imperial Conference that that Resolution to which I have referred should be rescinded so that the Indian representatives could be invited to the Imperial Conference. That would be necessary, would it not?

CHAIRMAN: Yes, I think it would be necessary. I take it it would not be possible for us to take absolute governing action, but we could obviously pass a resolution indicating that in our view it is desirable that that resolution should be rescinded and that formal steps should be taken for the admission of India.

Sir JOSEPH WARD: Quite so.

General SMUTS: If the constituent Governments were approached there would be no difficulty about it.

CHAIRMAN: None whatever.

Mr. CHAMBERLAIN: If I may say so, any expression of opinion from this Conference would carry great weight with the constituent Governments; and I may add that it would be extremely gratifying for India if, having seen her representatives, this Conference was willing to make a recommendation of that kind and place it on record. There is no doubt Indian sentiment has greatly appreciated the admission of India to this Conference, and it would be profoundly disappointing if this Conference broke up without any indication at all that India might expect to be summoned to later Imperial Conferences.

Mr. MASSEY: There is no doubt about the willingness of the Conference—none whatever.

CHAIRMAN: Perhaps we might have a Resolution drawn and bring it up at a subsequent meeting.

Sir JOSEPH WARD: Yes, I think that would be an excellent arrangement.

CHAIRMAN: Very well, I will do so.

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Trade Commissioner Service.

Sir ALBERT STANLEY: You will observe from the Memorandum* that we call to the attention of the Conference the suggestions made by Sir Joseph Ward at the Conference which met in 1907, at which he suggested that there was lacking any official commercial representatives of the United Kingdom in the different self-governing Dominions. Acting upon that suggestion steps were taken to appoint Trade Commissioners and they have been established in the self-governing Dominions. The scheme was started in a small way, but the result of establishing those Commissioners has clearly justified Sir Joseph Ward's suggestion. There is no doubt that the anticipation of substantial improvement of the trade of the United Kingdom and of the

Dominions has been amply justified, and we have recently taken steps to add to these facilities the appointment of Trade Commissioners in other parts of the Empire, so that when that scheme is completed practically the whole of the Empire will be covered by a system of Trade Commissioners. Now those Trade Commissioners are established primarily with the object of securing for the benefit of the traders in this country information with respect to the trade within the Oversea Dominions. When I say that "primarily" their functions are limited as I have described them, I mean that if any information is asked for by traders elsewhere in the Empire it is given by them. We raise for discussion at this Conference the suggestion that perhaps these Commissioners might be used in a much broader sense. It is, I think, a matter worthy of discussion whether they could not take up much broader duties than those I have described so that their functions would not be limited as between the United Kingdom and the Dominions where they happened to be, but that their scope would practically cover the whole of the Empire.

Mr. MASSEY: What do you mean by broader duties?

Sir ALBERT STANLEY: I mean as between the Dominions themselves as well as between that particular part in which they happen to be and the United Kingdom itself.

Mr. MASSEY: Take a British trade representative in New Zealand: do you suggest that he should act for the New Zealand Government as between New Zealand and Australia, putting that by way of illustration?

Sir ALBERT STANLEY: Not necessarily.

Mr. MASSEY: Then what is intended?

Sir ALBERT STANLEY: Perhaps I may read this memorandum and then it will raise discussion on certain definite points; that will be the better way.

"The following are the proposed instructions to the Commissioners:—

(1) To reply to commercial inquiries which may be addressed to them by traders or Government departments in the Dominion represented, and to suggest suitable local agents for manufacturers or producers of that Dominion.

(2) To notify the Dominion Government of changes in the Customs tariffs or other regulations affecting its trade.

(3) To report any openings for trade, or contracts open to tender, which might interest producers or manufacturers in the Dominion represented.

(4) To maintain an exhibition of the produce and manufactures of the Dominion (if this is desired).

(5) To circulate and distribute in the districts where they are stationed official literature relating to the trade, agriculture, and manufactures of the Dominion represented; and

(6) Generally to watch over the trade interests of the Dominion in the country in question.

The Dominion represented should supply the Trade Commissioners with the information (Blue books, agricultural reports, trade newspapers, lists of exporters, directories, etc.), necessary to enable them to carry out their functions."

Mr. ROGERS: Does that proposal just mean that there is to be a representative for each Oversea Dominion, or do you propose to widen the scope?

Sir ROBERT BORDEN: There are a certain number in Canada and in Australia, and it is proposed, as I understand it, to increase their number and also to widen their scope.

Mr. MASSEY: I think the Dominions have representatives in Europe. Using New Zealand as an illustration, we have our representatives in Australia, and I am afraid that this suggestion may have the effect of overlapping their duties and causing a

certain amount of friction unless we withdraw our men, but I do not think that will do at all, because nobody can represent a Dominion like a man who has been accustomed to its business and who has grown up in it.

Sir ROBERT BORDEN: As far as we are concerned the situation is very much the same. We have a Trade Commissioner in Australia. I am not sure that we have one in New Zealand.

Mr. MASSEY: You have a representative.

Sir ROBERT BORDEN: I know that we have in South Africa and elsewhere throughout the world commercial agents called Trade Commissioners.

Mr. HAZEN: We have them in different parts of the United Kingdom too.

Sir ROBERT BORDEN: Yes, we have Trade Commissioners in the United Kingdom as well. As far as the latter part of the Memorandum is concerned, of course each Dominion would be perfectly willing to supply the British Trade Commissioners with all information of every kind which might be useful to them there is no question about that.

Mr. MASSEY: Certainly.

Sir ROBERT BORDEN: It does seem to me that the other suggestions perhaps might require a little thought and consideration before one could undertake to say that they could be effectively acted upon. I have only just seen the proposal to-day, so I would not venture to express an opinion upon it. The idea of each Dominion would be to co-operate with those Trade Commissioners in every possible way and to utilize their services wherever that utilization would not involve confusion or friction between these Commissioners and those already appointed by and acting for the Dominions in various parts of the world.

Sir ALBERT STANLEY: We do not propose to interfere with them in any way whatever.

Sir H. LLEWELLYN SMITH: Wherever a Dominion has its representatives it will naturally use them, but there may be some parts of the Empire where a particular Dominion does not happen to be represented, and all we suggest is that His Majesty's Trade Commissioners in those cases should be at the disposal of the Dominions who do not happen to have their own representatives. I would not put it higher than that.

Sir ROBERT BORDEN: I think the offer in that sense would be very much appreciated. We desire to co-ordinate effort as far as possible for the common good.

Sir H. LLEWELLYN SMITH: That is so.

Sir JOSEPH WARD: I would like to say that I am in full sympathy with the proposal of the Board of Trade upon this matter, because in my opinion it is absolutely essential, if we are to meet the changed conditions which will exist after this War, that there should be wide facilities to the producers and the merchants in all parts of the Empire to have the full benefit of a recognised official constitution in the shape of commercial representatives.

The United States of America have brought this class of work up to a science. They are ahead, in my opinion, of any country in the world, and if we want after this War to be in a position to protect our Trade interests, it seems to me (judging by the excellent work that has followed the appointment of the existing Trade Commissioners) that we should have a systematised chain of trade representatives right over the Empire, as this proposal practically indicates, if we are to get the full benefit of the trade which we shall have to fight for when hostilities are concluded. We cannot discuss any possible course which may be taken after a conference with the War Cabinet upon these important trade matters which have been referred to them in the meantime, and it is impossible to tell what the necessities of some of the Allied countries and some of the Neutral countries will be in order to make up for the

devastating processes which have gone on during this War. But it is self-evident that they will require to look for extended markets as well as to various parts of the British Empire. There is no doubt that two of our Friendly Allies, the United States of America and Japan, are leaving nothing undone at present to plant themselves in countries where prior to the War this country had a stronger footing than they. I am referring particularly to Australia and New Zealand, where they have been intensely active since this War started, and rightly so, in my opinion, in making an inroad where Germany before had a very large hold in connection with certain trade.

British Trade Commissioners will not, in my opinion, conflict with the local trade representatives of the various Dominions. I do not think in our country we would under any conditions withdraw our representatives because there was a British trade representative in the same place. The work of our representatives is in some respects of a very different nature. Amongst other things our representatives advise people from different parts of the world who land in Australia, for instance, who have not made up their minds where to locate themselves, and give them information for the purpose of settlement. They also help our people with regard to trade inquiries of a local nature. From the point of view of protecting the traders and helping them to get fresh business there is nothing more reliable than an official trade representative from this country appointed by and under the management of the Board of Trade. I look upon it, from the point of view of helping the future trade of the Empire, as being of very great importance. I do not believe there will be any clashing between the Board of Trade representatives and our respective representatives whom we now have in different parts. I am in full sympathy with the proposal of the Board of Trade, but the details are a matter for consideration for those primarily responsible for submitting them, and so long as they do not clash with us—and I do not think they will—they commend themselves to me.

General Smuts: I agree with what has fallen from Sir Joseph Ward, and I rather deprecate the chilly reception which has been given to this proposal, which I think is an eminently useful proposal, and one which is in the interest of the Dominions. I see from the Memorandum which has been put before us that it is intended by the Imperial Government, by the Board of Trade, to extend the number of Trade Commissioners over the various parts of the Empire, and if their functions could be extended now as proposed, so that their services would be available where necessary and where required to the Dominion Governments and to traders, I think it would be a very good thing. I do not think there need be any overlapping with the duties of the similar representatives of each Dominion in Europe. Of course, where there are such representatives it would not be necessary for the Dominions concerned to avail themselves of the services of the Imperial Trade Commissioners.

Sir Joseph Ward: Quite so.

General Smuts: But in many cases there will not be representatives of a Dominion Government, and I think in such cases a great deal of expense would be saved to the Dominions and a great deal of co-ordinating work would be done by them.

I heartily welcome this proposal, and, if necessary, I would be prepared to move a Resolution to that effect.

Sir Albert Stanley: I wish to make it quite clear that we have not in contemplation impinging upon or interfering in any way with any of the local representatives. We feel that as time goes on the information which these Trade Commissioners will have at their disposal must grow and become of very great importance indeed, and it occurred to us that this information might be used to greater advantage than it has been up to the present time, and therefore, if it were the wish of the Oversea Dominions to utilize the services of those Trade Commissioners more than they have done at the present time, we shall be happy to co-operate with them so that they could secure those services.

Sir JAMES MESTON: As far as India is concerned, India would very gladly welcome these proposals, and gladly co-operate in any necessary way in order to carry them out. The great difficulty with us hitherto has been to get into touch, apart from the textile industries, with our consumers outside India, and we have had to start small local emporia, and things of that sort, which have not worked successfully. So what is now proposed would be of the greatest possible assistance to us. It is possible, as time goes on, that two Trade Commissioners would not be enough, but we would be very glad to have them as a beginning.

Sir ROBERT BORDEN: As far as Canada is concerned I did not intend to give this proposal the chilly reception to which General Smuts alluded. I stated that it would be the policy of the Government to co-operate in the fullest way with these Commissioners, but that where we had Commissioners of our own we should have to be careful that no friction arose with respect to the functions of those Commissioners on the one hand and our Commissioners on the other hand. I think all will recognize that as an important consideration. Subject to that we should be glad, as I said before, to co-operate to the fullest possible extent with the British Government in the work of these Commissioners, and to assist them in every possible way.

Mr. MASSEY: As far as I am concerned I would just like to say that there can be no possible objection to increasing the number of these Commissioners, absolutely none. I would go further than that and say that I do not think the British Government and the British people and British traders and commercial men have done anything like enough in the past, or anything like what they will be compelled to do when the War comes to an end. I feel very strongly (and I have been watching what has been going on) that British business men will have to fight harder against countries from which they have not had a great deal of competition in the past than ever they have had to fight against Germany. I am speaking now of industrial matters. I think time will show that the opinion I have expressed is correct. We are all anxious to assist, and what has occurred to me is this. I want to come back for a moment to the business of the Conference. We took the whole of the last sitting discussing commercial matters, and we come along this morning and find it is not convenient to the representatives of the Imperial Government to go on with that subject. Very well; we do not very much object to that; it will probably go to the War Cabinet and be discussed there at considerable length, and, if you like, it will come back to be discussd here. Now here is a proposal to which there is no possible objection, and, upon my word, seeing the enormous amount of work which we have in front of us on such matters as Preference, the Future Representation of the Dominions in Imperial matters, and Migration from the United Kingdom, and all that sort of thing, I really do not think that we should occupy a very great deal of time in discussing this, seeing that no possible objection can be raised to it.

General SMUTS: May I move a Resolution to bring the matter to a point?

CHAIRMAN: Yes. This Resolution is proposed by General Smuts: "That the Imperial War Conference welcomes the proposed increase of the Board of Trade service of Trade Commissioners and its extension throughout the British Empire, in accordance with the recommendation of the Dominions Royal Commission, and recommends that the Governments concerned should co-operate so as to make that service as useful as possible to the Empire as a whole, especially for the promotion of Inter-Imperial Trade."

Sir EDWARD MORRIS: I should like to second that Motion and to say that I entirely concur in the proposal of the Board of Trade in relation to the establishment of additional Trade Commissioners; but I would like to point out to the President of the Board of Trade that it would be desirable to have one of those permanently residing in Newfoundland. In the past we have had one Trade Commissioner between the two countries—Canada and Newfoundland—and we have had an annual visit from him,

but more than that is, I think, desirable now. If you are going to give three Trade Commissioners to Canada, one might be allotted to Newfoundland and have a permanent residence there.

Sir ALBERT STANLEY: I should certainly be the last one to place a restriction upon our attempts to increase the scope of our trade activities. We shall certainly give very careful consideration to your suggestion.

Mr. HAZEN: I hope this may lead to a very considerable development of British trade in Canada. Some years ago in conversation with Sir William Van Horne, who was for years the President of the Canadian Pacific Railway Company, he pointed out to me in very vigorous language that the British merchants and British manufacturers had not organized trade with Canada in the way it should be organized, and that there was room for a tremendous development of trade which would be very much to the advantage of the British manufacturer and the British merchant if trade was organized with Canada along proper lines. He pointed out that the people in the United States were doing a lot of trade with Canada which could very well be done by the people of the British Isles if they used modern and progressive methods in the way of getting hold of that trade. He said to me that he believed that he could undertake himself, with his wide experience in many activities, to organize British trade in a way which would be enormously to the advantage of the British Isles and at the same time be very much to the advantage of Canada. I hope that these Trade Commissioners will take up questions of that sort very actively and very energetically, and I have no doubt what is true of Canada as to British trade would also be true of other Oversea Dominions.

CHAIRMAN: Is it your pleasure that the Resolution proposed by General Smuts and seconded by Sir Edward Morris be approved? (*Agreed.*)

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EIGHTH DAY.

Friday, 13th April, 1917.

The Imperial War Conference met at the Colonial Office at 11 a.m.

PRESENT:

The Right Honourable WALTER H. LONG, M.P., Secretary of State for the Colonies (Chairman of the Conference).

The Right Honourable The EARL OF DERBY, K.G., G.C.V.O., Secretary of State for War.

The Right Honourable Sir ALFRED L. MOND, First Commissioner of Works.

Canada.

The Right Honourable Sir R. BORDEN, G.C.M.G., Prime Minister.
The Honourable Sir G. H. PERLEY, K.C.M.G., Minister of Overseas Military Forces.
The Honourable R. ROGERS, Minister of Public Works.
The Honourable J. D. HAZEN, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. MASSEY, Prime Minister.
The Right Honourable Sir JOSEPH WARD, Bart., K.C.M.G., Minister of Finance.

South Africa.
Lieutenant-General the Right Honourable J. C. Smuts, Minister of Defence.

Newfoundland.
The Right Honourable Sir E. P. Morris, K.C.M.G., Prime Minister.

India.
The Right Honourable A. Chamberlain, Secretary of State for India.
Sir J. S. Meston, K.C.S.I., Lieutenant-Governor of the United Provinces.
Sir S. P. Sinha; Member Designate of the Executive Council of the Governor of Bengal.
Mr. H. C. M. Lambert, C.B., Secretary to the Conference.
Mr. E. J. Harding, Junior Assistant Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. Fiddes, G.C.M.G., C.B., Under Secretary of State for the Colonies.
Mr. A. D. Steel-Maitland, M.P., Parliamentary Under Secretary of State for the Colonies.
Sir Lionel Earle, K.C.B., C.M.G., Secretary, Office of Works.
Mr. J. S. Risley, C.B., Legal Adviser, Colonial Office.
Brigadier-General F. A. G. Ware, C.M.G., Director of Graves Registration and Enquiries, War Office.
Captain J. R. Brooke, R.G.A., War Office.
Lieutenant-Colonel W. Dally Jones, Assistant Secretary to the War Cabinet, and
Private Secretaries.

Invitation from the French Government.

Chairman: The first communication I have to make to the Conference is that I have received from the French Ambassador in London the following invitation addressed to the Secretary of State for Foreign Affairs. He says that he has a command from Monsieur Ribot to say that the French Government will be delighted to receive a visit from the Representatives of the Great British Dominions who are actually in London at the present time. Monsieur Ribot asks the British Government to convey this information to the Members of the Conference and to inform the French Government of the date, etc., on which it would be possible for them to visit Paris, supposing they decide to do so. I do not know whether the Members of the Conference would be prepared to instruct me to answer that communication to-day or whether they would prefer to consider it.

Mr. Massey: It depends upon the time at which we finish up our business.

Sir Robert Borden: I think we must consider it.

Chairman: Then perhaps you would like to have a copy of this invitation sent to you.

Sir Robert Borden: Yes; thank you.*

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* Note.—The following reply was subsequently sent to the invitation of the French Government:—

Your Excellency, Foreign Office, April 24th, 1917.

With reference to Your Excellency's Note of the 3rd instant, in which you were so good as to extend to the oversea representatives of the Imperial War Conference the cordial invitation of your Government to visit France, I have the honour to inform Your Excellency that the representatives have requested me to beg Your Excellency to convey to the French Government their warm thanks for this generous invitation, which they would, if circumstances had permitted, have been delighted to accept. The representatives feel, however, that the pressure on their time is such that it is impossible for them, as a body, to pay a visit to France.

Representation of India at future Imperial Conferences.

CHAIRMAN: Then there is a Resolution carrying out the decision of the Conference as regards the inclusion of India. At the last meeting the Conference decided to pass a Resolution with reference to India securing permanent representation at the Conference, and I have had the following Resolution drawn:

> "That the Imperial War Conference desires to place on record its view that the Resolution of the Imperial Conference of 20th April, 1907, should be modified to permit of India being fully represented at all future Imperial Conferences, and that the necessary steps should be taken to secure the assent of the various Governments in order that the next Imperial Conference may be summoned and constituted accordingly."

I think Sir Robert Borden will move that.

Sir ROBERT BORDEN: Yes, I have great pleasure in moving it.

Mr. MASSEY: And I in seconding it.

CHAIRMAN: This Resolution is proposed by the Prime Minister of Canada, Sir Robert Borden, and seconded by the Prime Minister of New Zealand, Mr. Massey. Is it your pleasure that that Resolution be adopted? (*Agreed.*)

Mr. CHAMBERLAIN: May I, on behalf of India and its representatives, say one word of very grateful thanks to the other members of the Conference for what they have just done. Sir Satyendra Sinha wishes me to add that it will give great satisfaction in India.

CHAIRMAN: I also am very glad indeed.

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Care of Soldiers' Graves.

CHAIRMAN: The question for our discussion now is the proposals of the "Prince of Wales's Committee for the Care of Soldiers' Graves," in regard to which a minute of the Prince of Wales has been circulated,* and there is going round now a Draft Charter,† which has been prepared to give effect to that. There is a Resolution, which, I understand, Sir Robert Borden is prepared to move later on, but I also understand that the Conference wishes to say something about the general question. Lord Derby, the Secretary of State for War, is here, although it is not simply a War Office question.

LORD DERBY: As representing the War Office I do not know that I have really anything to say except just this, that this Royal Commission which is to be formed is not going to be advisory, but is going to have executive power to see that the graves of our soldiers are kept for all time in proper order. The agencies they would use for such a purpose would be left entirely to that Royal Commission, and there

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If, however, any individual member of the Imperial Conference should find it possible to visit France later, I shall not fail to inform Your Excellency in time for the necessary arrangements to be concerted.

I have the honour to be, with the highest consideration,
Your Excellency's most obedient, humble Servant,
R. GRAHAM.

His Excellency Monsieur Cambon,
&c., &c., &c.

* *See* Minute printed on pp. 141-142.
† *See* Draft Charter on pp. 146-156.

would be no question of saying to it: "You are to use this or that body to do it." All the Dominions will be represented, the Crown Colonies will be represented, and India also will be represented. There are certain people in this country who will be represented. It will be a body which, as I say, will have executive powers and will use its own agencies for seeing that these graves are properly looked after, and I hope by this means we shall get not only the work well done, but get continuity, without which I am perfectly certain some graves, at all events, would probably fall into neglect. What we want to avoid is the spasmodic efforts that are made from time to time to look after the graves of soldiers in past wars. We want to ensure that the graves of those who have fallen in this War are looked after by those who are living at the same time, and handed on to those who come after them. That is my view, and I hope it will be adopted by this Imperial War Conference.

Sir Robert Borden: I do not know whether we have all had an opportunity of looking over the proposed Charter.

Mr. Massey: We have not.

Sir George Perley: Has this Charter been passed by the Committee?

Lord Derby: No.

Sir George Perley: It will be submitted to the Prince of Wales's Committee, I suppose, before it is finally agreed to.

Lord Derby: The Prince of Wales has by his minute handed the matter over to this Conference for decision. If this Imperial War Conference accept this scheme —and this Charter has been most carefully drawn with a view to giving effect to the wishes which have been expressed—then there is no question of its being referred to anybody else. It will be accepted; of course it will have to go through the necessary forms and get the Royal Assent, and so on, but I do not think you need have any fear that there will be any alteration made.

Sir George Perley: I quite agree in the general principle, and no doubt it will be all right, but I notice one thing which should be altered. If there were not a High Commissioner here, for instance, you could not have anybody to take his place under this ruling. The Government of Canada could not appoint anybody else.

General Ware: I would like to refer you to subsection (3) of clause 5 of Part IV. of the Draft Charter where, I think, that point is met.

Sir George Perley: The High Commissioner may appoint a representative if he were not present, but the Government of Canada could not appoint some one to take his place if there happened to be no High Commissioner. It is a small matter in a way, but there may be little things of that kind in which the Charter might be improved. I have not had an opportunity of reading it.

Mr. Massey: I think the Charter may be improved after the Imperial War Conference has expressed an opinion upon the general question. I do not think there is any difficulty about it. The point raised by Sir George Perley is a very important one and, as a matter of fact, I have made a note of it upon the original memorandum. There are other points. I do not think this quite fills the bill. May I say at once that I agree with the general principle, and I am sure I am expressing the opinion of all the other Members of the Conference when I say that we all appreciate what is being done to care for the soldiers' graves not only in this country but overseas in France and in Belgium. I will say a word about Gallipoli presently. There is that point about the High Commissioners, and I think instead of the High Commissioners the representation of the different Dominions should be left with the Government of the Dominion itself. It might be, for instance, that the High Commissioner representing a Dominion would have his hands sufficiently full without taking up work like this, or a Dominion might have a more suitable representative, a man with plenty of time and leisure to attend to a thing like this.

and with whom it would be a labour of love. The Dominion concerned might make arrangements with the High Commissioner so that the other man would act. I can imagine a case like that. I am not blaming any High Commissioner, but I am suggesting what may possibly happen in the future because we are making arrangements not only for the present but for a great many years to come. I know perfectly well that this can be altered as time goes on.

Lord Derby: Might I suggest that in order to save time of the Conference, which you yourself said was so very valuable, the best thing would be if you will accept it as a general principle, that everybody should take this draft away and should send in to General Ware any criticisms or alteration they wish to make. If it is then found possible to incorporate them, they could be incorporated and, on the other hand, if it was not found possible to incorporate them the matter should be discussed between, if you like, myself and the individual Member of the Conference who wishes something altered, in order to see if we can arrive at some understanding and then put it in its final form for acceptance by this Conference.

Mr. Massey: There is another point I want to raise now, and it is this: In the Minute from the Prince of Wales which has been submitted to us there is this proposal referring to the Commission——

Lord Derby: We have had certain discussions on what we have known of the objections, and I think you will find the Draft Charter now does differ a little from the actual Minute, and I think you will find, probably, it meets your case.

Mr. Massey: There is the difficulty in which we are placed. We get this placed in our hands——

Lord Derby: My proposal is that you should take the Draft Charter away with you and study it carefully, and that you should tell me what objections, if any, you have that have not been met in the Charter, and then we should endeavour to incorporate them in a fresh Draft Charter. I think that would save time.

Mr. Massey: Very well.

Sir Robert Borden: The Resolution I was asked to move is this:—

> "The Conference, having considered the Minute addressed to the Prime Minister on the 15th March, 1917, by his Royal Highness the Prince of Wales, concur in the proposals made therein, and humbly pray His Majesty to constitute by Royal Charter an Imperial War Graves Commission for the purposes, and on the lines, stated by His Royal Highness. The Conference desire to record their grateful appreciation of the work already done by the Prince of Wales and his Committee in caring for the graves of those who have fallen in the common cause of the Empire, and their satisfaction that His Royal Highness has consented to become the President of the Permanent Commission."

So far as the concluding paragraph is concerned, there would not be a moment's hesitation in concurring most heartily in that expression of appreciation. However, as Lord Derby has said, the Draft Charter which is put before us does differ in some respects, which might be regarded as more or less material, from the Minute which has led to the Resolution. So possibly it might be desirable to modify a little the words of the Resolution in order to make it clear that we are dealing with the terms proposed in the Charter subject to such modifications as might be approved by the Conference.

Mr. Chamberlain: I hope, Mr. Long, we may accept Lord Derby's suggestion. This Charter has only been put in our hands this morning and it is quite impossible for any of us to compare it as we sit here with the Memorandum, or to see exactly what has been done. If we could have the advantage of the offer which Lord Derby

has made, namely, that we should communicate to him any suggestions we wish to make and that then the document as settled as the result of those private negotiations should come for formal approval to the Conference, I really think we should save time and do our business more satisfactorily.

Sir ROBERT BORDEN: If we wish to make progress would it not meet the view of the Conference if we modified the Resolution in this way:

> "Humbly pray His Majesty to constitute by Royal Charter an Imperial War Graves Commission for the purposes and on the lines set forth in the Draft Charter now submitted to this Conference"?

Sir JOSEPH WARD: And then the Draft Charter would come up afterwards.

Sir ROBERT BORDEN: It merely says "for the purposes and on the lines"; it does not bind us.

Sir EDWARD MORRIS: I think that would meet the case, because it would enable us to make any alterations in it.

Sir ROBERT BORDEN: The difficulty is that the proposed Charter does not follow precisely the lines of the Memorandum.

General SMUTS: I have just been glancing through it and I think the Draft Charter is an improvement on the Memorandum.

Sir ROBERT BORDEN: I think it is an improvement.

General SMUTS: I think if the Resolution is passed like that, it is simply generally "on the lines of" the Memorandum submitted, and I would strongly favour that. If we pass this Resolution in this general form and then make to General Ware our suggestions as to any small amendments, most of my difficulties are removed by the terms of the Charter.

Mr. MASSEY: I want to say a word about this. I understand the Motion is now before the meeting, and it is a matter upon which I feel somewhat strongly. I gave notice of motion at a previous meeting with regard to Gallipoli from a sense of duty to the people whom I represent. The question of Gallipoli was raised in New Zealand last session, it was not discussed at length but a request was made that I should, if I got the opportunity, bring it before the Imperial authorities. At that time there was no suggestion of an Imperial War Conference or anything of the sort, but I promised, and, as a matter of fact, I should have done it without any promise being made and should have endeavoured to have the matter put right if it was possible to do so. As I say, I gave notice of motion at a previous meeting, though I have not got a copy of the notice here, which was to this effect—and I will read an amendment I propose to move—that an endeavour should be made, when peace terms were being arranged, that the ground in which our soldiers are buried in Gallipoli should pass under the control of a British organization. That was the line I took. I am sorry that, so far as I have been able to see, there has been no attempt made in this Draft Charter, or in the Motion now before the Conference, to meet me on that very important point, because it is really a matter of intense importance to many people in the Overseas Dominions, and to many people in Britain and in India, that something should be done in this way. So far as the Charter is concerned, it is quite impossible for any one to grasp the real meaning of every point raised in it when it is only brought before us in this way, and on that account I am quite willing it should stand over.

LORD DERBY: I think we can simplify and shorten matters if you accept my suggestion, because you will see yourself in the Charter the purpose of the Commission is: "To acquire and hold land for the purpose of cemeteries in any territory in which any officers or men of our military or naval forces raised in any part of our Empire

who shall have fallen in the present War may be buried." And "To acquire by gift, purchase, or otherwise, and hold and dispose of personal or movable property of every kind in the United Kingdom or elsewhere." That is as far as we can go.

Mr. MASSEY: No, I stand by myself, but I want special reference made to Gallipoli if it is possible. I do think Gallipoli is of sufficient importance for the War Office and for the Members of this Conference specially to consider it.

Sir EDWARD MORRIS: There could be no objection to mentioning all these places including Gallipoli.

Mr. MASSEY: I want to move this amendment:

> "That this Conference is strongly of opinion that when peace terms are being arranged an earnest endeavour shall be made to have that part of the Gallipoli peninsula where lie the remains of so many British and Oversea Dominion soldiers placed under the control of the above-mentioned Commission."

I move that as an amendment, and I hope Sir Robert Borden will accept it.

Sir EDWARD MORRIS: I would suggest to Mr. Massey that if we were to name the various theatres of war the words read out by Lord Derby would meet the case—that is, to secure land in Great Britain, Gallipoli, Mesopotamia and the various theatres of war or elsewhere. That would meet the whole case. That is what the words of the Charter are intended to give the Commission power to do—to secure this land in every threatre of war. Your case, Mr. Massey, will be met by naming these various theatres and then the words "or elsewhere" would cover it.

General WARE: I should like to say that it was the intention when this Charter was drafted to include Gallipoli in the recital where it says those "buried in foreign countries." It will be quite possible in that way to emphasize the matter and to draw attention to the Gallipoli graves, if that is the desire of the Conference.

General SMUTS: I think it is invidious. Why should a distinction be drawn between men who rest in Gallipoli, coming from one part of the Empire, and others who fought just as bravely, and who lie in another part of the world?

Sir ROBERT BORDEN: It would seem to me that if the Charter does not make that perfectly clear—I must say I thought it did—reference should be made to all the theatres of war in other countries. I think there is no objection to doing that.

Mr. HAZEN: It would be a very difficult thing to refer to every particular theatre of war. I think it would be better to leave it general as it is here, which covers anything.

Mr. ROGERS: We cannot distinguish one or two.

Mr. MASSEY: I am afraid, Mr. Long, the Members of the Conference do not see the point. I did not think it necessary to emphasize it, but Gallipoli is in an enemy country in possession of the enemy. The other places are not in the same position. I am glad to see that France has done its duty already; France has handed over the ground to the British Government where the British soldiers have been buried, and Belgium proposes to do exactly the same thing, and no doubt it will be done; but Gallipoli is in quite a different position, and there is very serious difficulty there, which I am afraid will not be got over, and that is why I raise it, and I feel it all the more strongly because no representatives of Australia are here to-day, so that Sir Joseph Ward and I are really speaking on their behalf as well as our own.

LORD DERBY: Mesopotamia would equally come under that.

Sir ROBERT BORDEN: Or Palestine.

General SMUTS: And Salonika.

LORD DERBY: Yes, Salonika.

Sir JOSEPH WARD: If this matter is regarded from the New Zealand standpoint, then I think if the Conference can agree to what Mr. Massey has proposed, it would be a very gracious matter on their part to do it. I agree with Lord Derby that we should accept this Charter, after we have had the opportunity of considering it, as the basis upon which the whole control of the graves of our soldiers should rest. That is perfectly right, and it would save a good deal of time if we defer the consideration of it until we have had an opportunity of going through the details of the Charter. Sir Robert Borden has moved a resolution which leaves out that point to which Mr. Massey has referred, and to which I was going to call attention, namely, the case of Gallipoli, Mesopotamia, and other places.

Sir ROBERT BORDEN: There are also Palestine and Salonika.

LORD DERBY: And Southwest Africa.

Sir JOSEPH WARD: We had it not only brought up before the New Zealand Parliament, but before the Cabinet of New Zealand, and there is a very strong desire there (the New Zealanders took their full share in the fighting at Gallipoli), and a strong sentimental feeling—and a sentimental feeling is a very powerful one—that care should be taken of the graves of the men dear to people who are thousands of miles away from Gallipoli. It seems to me that Sir Robert Borden could, without any difficulty, have what is proposed included in his Motion.

LORD DERBY: I agree with Mr. Massey that, from a sentimental point of view, it is just as well to mention these places if you can mention them. I do not say that you cannot, but what I do think is that you must be very careful in a Charter like this to deal with all graves, over the world almost, where our men have been killed or have died, so that by mentioning certain localities you do not exclude others from the powers of the Charter under which this Commission is to work. Therefore, I do not myself see any harm in doing so, if it is wished, to put in Gallipoli, Mesopotamia, and all the other places, as long as you have the qualifying words at the end "and elsewhere."

Mr. MASSEY: "And other places." What I propose is that Gallipoli should be mentioned, "and other places where lie the remains," and so on.

Sir ROBERT BORDEN: With all deference to the considerations that have been advanced, and with every possible appreciation of what has been done in Gallipoli or anywhere else, I see no reason why Gallipoli should be mentioned more distinctively than other theatres of war where men have fought with equal courage and equal distinction. It is said that we must consider enemy countries. I am not impressed with the importance of that, because whether it is an enemy country or any other foreign country suitable arrangements can only be made by negotiation with foreign Governments. We have no more right over the land in France than we have over the land in Gallipoli except by arrangement with the French Government.

Mr. MASSEY: France is our Ally.

Sir ROBERT BORDEN: I know France is our Ally, but we have no more right over her territory than over Gallipoli. We must make arrangements with the French Government, and it is equally important to us as to any other Dominion to know that the graves of the men who have fallen are to be properly cared for, and we expect that they will be cared for under this Commission.

Mr. MASSEY: I look upon it in this way. I happen to know as a matter of fact—and this not second-hand information—that the graves in Gallipoli are being neglected. I say that positively. You cannot expect anything else.

LORD DERBY: We cannot get there to do anything.

Mr. MASSEY: As I say, you cannot expect anything else. It is enemy territory, and I say it is simply sacrilege to allow the state of things existing in Gallipoli at the

present moment to go on. It will be sacrilege to allow the graves of our men to be trodden over by human beings and by animals, as they certainly will be in years to come, and soon every mark will be obliterated. I have seen a photograph of the place, and it made me sad and sorry to see it and to think of what was going to take place within a very few years.

Sir ROBERT BORDEN: I agree with Mr. Massey that any such condition should be prevented by every possible means in our power, whether it is in the terms of peace or otherwise.

Mr. MASSEY: Yes. I am simply doing my duty by moving the amendment, and I propose to take a vote upon it if it is necessary—I hope it will not be—because I know the country which Sir Joseph Ward and I represent will feel it very keenly if something is not done with special reference to Gallipoli. I admit that other places should be considered in the same way, but there are not the same difficulties in the other places as exist at Gallipoli.

Mr. HAZEN: Does your Resolution carry the matter any further than the provision here under "Purposes and Powers of the Commission," where the first subsection in clause 1 of Part V says: "To acquire and hold land for the purpose of cemeteries in any territory in which any officers or men of our military or naval forces raised in any part of our Empire who shall have fallen in the present War may be buried"? Would not one of the first acts of this Commission, which is constituted by Royal Charter, be to enter into negotiations for the purpose of acquiring the land in Gallipoli in which the Australians and men of other Dominions have been buried?

LORD DERBY: I am not sure it is not a question which would be taken in as one of the peace terms.

Mr. MASSEY: That is exactly what I want.

Mr. HAZEN: It seems to me that would be one of the first functions of the Commission.

Mr. MASSEY: I do not think Members of the Conference have grasped my point.

Sir ROBERT BORDEN: Yes, we have.

Mr. MASSEY: I will read my amendment again because evidently Members of the Conference did not know that I was referring to the peace terms:—

> "That this Conference is strongly of opinion that when peace terms are being arranged an earnest endeavour shall be made to have that part of the Gallipoli peninsula and other places where lie the remains of many British and Oversea Dominions soldiers placed under the control of such Commission."

LORD DERBY: The Charter gives the Commission that power.

General WARE: I would point out that the Draft Charter has this definitely in view in the second paragraph of the recital where it is said: "Negotiations are now proceeding or will hereafter be instituted, on our behalf with the Governments of other foreign States for similar grants of land for the graves of officers and men of our said forces who have been, or may be, buried in the territory of such States." As far as the Charter goes it is covered.

Mr. MASSEY: I am not speaking of the Charter. I am not objecting to the Charter. We can amend that, if necessary. The point I raise is that this shall come up when peace terms are arranged. That is the point.

LORD DERBY: At the Imperial War Cabinet we shall discuss peace terms, and would it not be the right time then to put it in and not to do it when we are discussing the Charter, that amongst the peace terms should be the compulsory handing over of land in which our men are buried?

Mr. MASSEY: I cannot understand the objection to this.

Sir ROBERT BORDEN: There is no objection, Mr. Massey, except this, that we have men fighting in Mesopotamia and in Salonika and in other theatres of war all over the world, and I think that the object which you have in view would be attained by making a general reference to all the theatres of war, so that the danger which you apprehend would be guarded against in the peace terms or otherwise. I have no objection to that.

Mr. MASSEY: I may say at once I am not satisfied with what is proposed. I see that it is suggested in the Minute that the Commission should consist of not more than fourteen members and those fourteen will be mostly officials. I do not see why the Commission should be limited to fourteen. We know that there are thousands of philanthropic men not only in Britain but elsewhere who would be delighted to be members of such a Commission.

LORD DERBY: The limit has been removed.

Mr. MASSEY: Has it?

LORD DERBY: Yes, in the Draft Charter. May I go back to my original suggestion which is that you should see the Charter and let me know what alterations you want to recommend?

Mr. MASSEY: But we have the Motion which has been moved by Sir Robert Borden before the Conference. There is another point arising out of it. I am glad that by the Charter the limit has been removed. The Commission is to consist of certain Ministers; the Secretary of State for War and the Secretary of State for the Colonies, and so on, are to be members of the Commission, or their duly accredited representatives. Who are to be their representatives? I would have no objection to raise if these gentlemen themselves were to remain on the Commission, because I know that they would do their duty, but their places may be taken by officials in their departments, who are naturally interested in their work rather than the particular subject we are discussing now, and we cannot expect them to give that attention to it which this subject deserves. However, I am doing what I strongly feel is my duty under the circumstances, and I am going to ask the Conference to decide.

LORD DERBY: I hope Mr. Massey will not think I am opposing in the least what he says. I recognize to the full that we must do everything we possibly can, and really I am dealing with it with a view to simplify it, and I say we will put in everything we possibly can to make it perfectly clear.

General SMUTS: Would it satisfy Mr. Massey more if all the various theatres were set out?

Mr. MASSEY: I have said "Gallipoli and other places."

Sir EDWARD MORRIS: Have you any objection to naming the other places?

Mr. MASSEY: Not a bit.

Sir EDWARD MORRIS: Then I will second it.

General SMUTS: One does not want to have to do the invidious thing of voting against it.

LORD DERBY: Certainly mention all the theatres of war so long as you add "and elsewhere" at the end in order to make it clear that it refers to wherever men may be buried.

Sir ROBERT BORDEN: I object to mentioning one theatre of war and grouping the others in a general term. I will not support a Resolution of that kind. If theatres of war are mentioned I insist on all the theatres being mentioned whether they are enemy countries or allied countries. I am perfectly prepared to support that, but I will not support a Resolution at this Conference selecting by name one particular theatre and leaving the others under a general designation "and other places." I will not support that.

Mr. MASSEY: Then it is Sir Robert Borden's duty to move for the insertion of the names of the other places, and I will accept that.

Sir ROBERT BORDEN: I have proposed the Resolution which was handed to me by the President of the Conference, and I am willing to modify it on the lines I have mentioned, if the Conference is of opinion that it should be done, naming all the theatres of war.

CHAIRMAN: If you name all the theatres of war, does not that cover the ground?

Mr. MASSEY: I have said that I am prepared to accept that.

Sir EDWARD MORRIS: I will second the Motion in that form.

Sir ROBERT BORDEN: Perhaps we can have it passed in that form and then agree amongst ourselves.

General SMUTS: I think that is best, Mr. Massey, and it meets your point.

Mr. MASSEY: I am prepared to accept that.

LORD DERBY: Then will each Member of the Imperial War Conference send to me, or to General Ware, at the War Office, the names of the theatres of war and how they wish them described?

Mr. CHAMBERLAIN: I am very sorry to wear even the appearance of obstruction, but surely it is not possible to deal with Mr. Massey's Resolution in that way. He proposes that when peace terms are being arranged an earnest endeavour should be made to place all positions where British graves lie, whether in friendly or enemy territory, under control of an Imperial organization. Surely we cannot make a stipulation like that with France in connection with peace terms?

Mr. MASSEY: That has been done already.

LORD DERBY: Yes, that is done.

Mr. CHAMBERLAIN: Are you going to name France in this Resolution?

Mr. MASSEY: No, France has arranged.

Mr. HAZEN: France is one of the theatres of war.

LORD DERBY: France has agreed by law.

Mr. HAZEN: But even if it has agreed is it to be named?

CHAIRMAN: The real point seems to be in what way you are to make it clear that it is the desire of the Conference that every effort should be made to secure the same protection for graves in enemy territory that is already secured in allied territory?

LORD DERBY: That is the whole thing.

CHAIRMAN: It is suggested that in order to make that clear you should designate all the enemy territories—all the theatres of war.

LORD DERBY: I may mention incidently that Salonika is neutral territory.

Sir ROBERT BORDEN: The territories outside the British Empire are all very much in the same position. We make arrangements with a Foreign Government.

General SMUTS: I do not like to vote against Gallipoli, and although I think it is the better thing I would prefer to mention all these theatres, and I am sure General Ware will consent to that.

General WARE: There is no difficulty at all in introducing that into the Charter if we have an instruction from the Conference.

Mr. MASSEY: I do not want to alter the Charter. As far as I am concerned I stand by the Resolution. I do not care two pins for the Charter. The Resolution is what I am dealing with.

Sir ROBERT BORDEN: The Conference ought to express appreciation of the arrangements which have already been made by France.

Mr. MASSEY: That should be done.

Sir ROBERT BORDEN: And it should further proceed to express its conviction that adequate arrangements should be made with regard to graves in territory which will after the conclusion of the War remain in enemy occupation and then, if you like, go on to name those theatres.

CHAIRMAN: There are one or two general questions which have been raised in the discussion, for instance, as to the appointment of representatives of the Imperial Government and of the Dominions, and whether that should be as it is in the Charter, or whether the general view of the Conference is that the Governments should have power to appoint their representatives. If we could settle these it would help the War Office.

General SMUTS: If any of these people cannot be present at meetings, those who represent them should be settled.

General WARE: We want to know whether the High Commissioners should be definitely specified or whether, as Mr. Massey suggested, the words should be "Representatives of the self-governing Dominions," who need not necessarily be High Commissioners.

CHAIRMAN: The point is that in the Charter you gave Newfoundland the right to name their representative, because they have not got a High Commissioner resident in London. The suggestion made is that you should make that applicable to all Dominions. This is really the point.

LORD DERBY: There would be no difficulty about that.

Sir JOSEPH WARD: There is no objection to "the High Commissioner or such other representative."

CHAIRMAN: Not he, but the Government may select.

Sir JOSEPH WARD: Yes.

Sir ROBERT BORDEN: They would be regarded as *ex officio* representatives. Another point was raised by Mr. Massey which might be considered now and that is as to the power of delegation. I understood he had some objection to that.

Mr. MASSEY: Yes. I really do not think that power should be there. I think it is quite right that the Ministers mentioned here should be members of the Commission, but I do not think they should have power to delegate their positions on this Commission to any official in their department.

Mr. CHAMBERLAIN: Would not that be rather hard on the Secretary of State, for instance? He represents in this matter the Government of India. The Government of Canada or the Government of New Zealand may appoint anybody to act in the absence of their nominated person, but India would be deprived of any representation unless the Secretary of State could attend.

Sir ROBERT BORDEN: Mr. Massey's objection was general, whether to the representatives of the Dominions or to the Secretary of State.

Mr. CHAMBERLAIN: I beg your pardon; I thought he claimed the right for the Dominions. May I say what I think is the case? and then he will tell me whether I am right or wrong. I thought he claimed the right for the Dominions to substitute somebody for the High Commissioners if they so wished.

Mr. MASSEY: Yes.

Mr. CHAMBERLAIN: But he refuses that right to the Secretary of State for India to be represented by anybody except himself.

Mr. MASSEY: Yes. I do not think Mr. Chamberlain has actually grasped the position, if he will allow me to say so In the one case the Imperial Minister would have the right to say to one of his officials, "You go along and represent me on this Commission." But I do not suggest that the High Commissioner representing any one of the Dominions should have the right to take up that position, and it would

be for the Government of the country he represents in London to make some arrangement for some other man if they thought it desirable or proper.

Sir ROBERT BORDEN: Pardon me, but I would like to know what your objection is. As it stands at present the Secretaries of State and the High Commissioners equally have the power of delegation. Are you objecting generally to the power of delegation as regards all, or are you objecting to the power of delegation as regards the Secretaries of State?

Sir JOSEPH WARD: In our case we suggest that he should be "the High Commissioner or such other representative as the Government may appoint."

Sir ROBERT BORDEN: I understand Mr. Massey objects to the High Commissioner *ex officio*.

Sir JOSEPH WARD: Pardon me; the proposal is "the High Commissioner or such other representative as the Government may suggest."

Sir ROBERT BORDEN: But still he would be an *ex officio* member to represent the particular Government.

Sir JOSEPH WARD: No. That is not so.

Sir GEORGE PERLEY: The man who is *ex officio* representing the Dominion ought to have the power of substitution, because he may be ill and may be unable to go, and therefore he may want to send somebody else to a particular meeting—not substitution for *always*, but substitution for any meeting that may be called.

Mr. MASSEY: This is substitution for always.

Sir JOSEPH WARD: I think Sir George Perley is right there.

Sir GEORGE PERLEY: Subsection (3) of clause 5 of Part IV only refers to special meetings, if you read it.

General WARE: Mr. Massey, if you would cast a more favourable eye on this poor old Charter of ours you will see that it endeavours to meet this difficulty, and it differs in this respect from the impression given you by reading the Minute. What is done in the Charter is that the Secretaries of State mentioned are *ex officio* members of the Commission and they are given under clause 5 of Part IV, subsection (3), powers, if you will look at it: "If any *ex officio* member is unable to be present at any meeting he may appoint some fit person to represent him at such meeting." The High Commissioners, or the representative who is appointed to this Commission, would have exactly the same powers as an *ex officio* member. I think that meets the case. If Mr. Massey approves the Charter, I do not think there will be any difficulty in meeting this point.

Sir JOSEPH WARD: As I was saying, I agree with Sir George Perley that that takes away the effect. My suggestion is "the High Commissioner or such other representative."

General WARE: It is most important that a definite instruction should be given on the matter by the Conference, as the Charter does at present differ in this respect from the Resolution as proposed.

Mr. MASSEY: General Ware must understand the position in which we are placed. This Memorandum was circulated yesterday, at least I saw it yesterday for the first time. I read it carefully, and I saw that it did not quite meet my ideas, and that I would have to suggest certain amendments Then we came along and are faced with a Draft Charter of eight pages. I am not a member of the legal fraternity, but I say it is impossible for any man on earth to understand all the proposals in that Charter at a minute's notice.

CHAIRMAN: But on this simple point I do not think it raises any difficulty. It is a question on which I am sure there is a misapprehension. The suggestion of the Charter and the proposal of the War Office is that the Commission should be appointed

in a particular way. In the event of any Member of the Commission being unable to attend he has a power, which he really must have if you are to do business, of nominating somebody for the purpose for a day, and only for a day.

Mr. MASSEY: It does not say so.

CHAIRMAN: Yes, it says so distinctly, clause 5, subsection (3) of Part IV.: "If any *ex-officio* member is unable to be present at any meeting he may appoint some fit person to represent him at such meeting and such representative shall be entitled to exercise all the powers and privileges of such member save that he shall not be entitled or chosen to preside at such meeting."

Sir ROBERT BORDEN: It is not a general delegation.

Mr. MASSEY: I think that does meet my objection.

General WARE: We want an instruction from the Conference that that is their desire, as I take it it is.

Sir JOSEPH WARD: I think what Mr. Massey wants is that the ordinary power of delegation should exist.

Sir ROBERT BORDEN: For a special meeting or a general meeting?

Mr. MASSEY: Only for a special occasion.

Sir ROBERT BORDEN: It is not a general delegation?

Sir JOSEPH WARD: No.

Mr. MASSEY: In the Memorandum it is a general delegation, and that is what I object to.

Sir ROBERT BORDEN: That is the reason why I thought it would be desirable, if we pass the Resolution, that we should give some attention to this Charter and not refer to the Minute alone, which differs from it in very material respects. I thought possibly you might modify the Resolution somewhat in this way. If gentlemen will be good enough to look at it for a moment, it says: "Humbly pray His Majesty to constitute by Royal Charter an Imperial War Graves Commission for the purposes and on the lines stated by His Royal Highness." Instead of that I suggest "for the purposes stated by His Royal Highness and on the lines set forth as embodied in the Draft Charter submitted to the Conference"—something of that kind would meet it.

Mr. MASSEY: But we have not read the Charter. I think the whole thing had better stand over. It is quite evident we are not going to arrive at any agreement to-day.

Sir ROBERT BORDEN: I do not know that we are ever going to arrive at an agreement.

CHAIRMAN: I hope you will come to a decision. It is very difficult if we keep on postponing things every day, having regard to the very limited time at our disposal. I would not mind at all if we had the next month, but we have only eight days left.

Lord DERBY: Will Mr. Massey come to the War Office and see General Ware and myself with any amendments he would wish to put in? and we will then see how far we can incorporate them, and if we cannot incorporate them *in toto*, we can bring whatever differences we might have to this War Conference again.

Mr. MASSEY: That means postponement. I am prepared to sit up all night sooner than allow our business to go undone. I am prepared to give up all my private engagements in order to attend to the business of this War Conference, but I do say it is unfair to come along with eight printed pages at a minute's notice and ask us to agree to it without having an opportunity of proper consideration.

CHAIRMAN: I really must protest. No such suggestion has been made to the Conference; quite the reverse. On the contrary, all we have asked is that there shall be a general agreement reserving as an absolute right to the representatives of India

and every Dominion to get any alterations they like made in this Draft Charter. Really we are not asking the Conference to rush anything or to decide anything without further consideration.

Mr. MASSEY: When will those alterations be considered?

CHAIRMAN: Supposing you accept the Secretary of State's invitation and go to the War Office and discuss this question and fail to get your point, then the Charter comes before the Conference again and you will be able to raise the question here.

Mr. MASSEY: Does not that come back to what I said just now, that we cannot agree to-day if it is open to further amendment?

CHAIRMAN: I do not think so. If we pass Sir Robert Borden's Resolution you are in a satisfactory position.

General SMUTS: Let us agree to the material point in this Motion. We ask His Majesty to constitute a Commission like that by Charter. That is really what is said in this Resolution, and the details are then left to discussion with the Director of Graves Registration.

Mr. MASSEY: I have expressed my opinion and I am going to leave it at that. When Sir Robert Borden moves the Motion I will move my amendment.

Sir ROBERT BORDEN: Lord Derby has submitted to me a clause which commends itself to my judgment and which might be added to the Resolution. Possibly it will enable us to dispose of it to-day:

> "The Conference places on record its appreciation of the French Government in allotting in permanency the land in that country where our men are buried, and urges that similar arrangements should be made, if possible, in the terms of peace with all the Governments, allied, enemy, or neutral, for a similar concession in Gallipoli, Mesopotamia, Africa, and all the theatres of war."

General SMUTS: Yes, there may be future theatres.

Mr. MASSEY: I am prepared to accept that, and if I had been met in the same spirit at first I think we might have saved a somewhat lengthly discussion.

Sir ROBERT BORDEN: I think this is very much the spirit in which you were met in the first instance, as far as I understand the situation. Might I be permitted to suggest then that we pass the Resolution: "The Conference having considered the Minute addressed to the Prime Minister on the 15th March, 1917, by His Royal Highness the Prince of Wales, concur in the proposals made therein and humbly pray His Majesty to constitute by Royal Charter an Imperial War Graves Commission for the purposes stated by His Royal Highness and along the lines therein set forth as embodied in the Draft Charter submitted to the Conference"—"along the lines" is perfectly general. Then follows the amendment which Mr. Massey is willing to accept and which has been submitted to me by Lord Derby.

Mr. MASSEY: Will you read that amendment again?

Sir ROBERT BORDEN: "The Conference places on record its appreciation of the French Government in allotting in permanency the land in that country where our men are buried."

Mr. MASSEY: "In perpetuity."

Lord DERBY: I am not a good draftsman.

Mr. MASSEY: Perhaps it does not matter.

Mr. CHAMBERLAIN: We had better say "appreciation of the action of the French Government."

Sir ROBERT BORDEN: Yes. "Appreciation of the action—its very deep appreciation of the generous action of the French Government in allotting in permanency." I think "in perpetuity" would be better.

General WARE: Yes; it has been done for ever. The French Government passed a law to that effect in 1915. It was an extraordinarily generous Act.

Sir ROBERT BORDEN: "In allotting in perpetuity the land in that country where our men are buried." Did not they do something more?

General WARE: They offered to look after the graves as well, but we did not accept that offer and said we would do it.

Sir ROBERT BORDEN: "And urges that similar arrangements should be made if possible in the terms of peace with all the Governments, allied, enemy, or neutral, for a similar concession in Gallipoli, Mesopotamia, Africa, and all other theatres of war." I think that covers it very appropriately.

Mr. MASSEY: That will do for me.

Sir ROBERT BORDEN: I will fix up this draft for the Secretary.

Lord DERBY: Will you come and see me about it, Mr. Massey?

Mr. MASSEY: I will read the Charter first.

General WARE: May I come to see you, Mr. Massey?

Mr. MASSEY: I shall be very glad to see General Ware if he comes along.

CHAIRMAN: Can we adopt the Resolution as it has now been read, subject to it being put into absolute form by Sir Robert Borden.

Mr. MASSEY: I accept it.

Lord DERBY: I may say one thing, that Sir Nevil Macready, the Adjutant-General, who is not here to-day, is ill and has gone on leave, but I would like the Conference to know that I am sure it is entirely owing to his efforts that from the very beginning these graves have been tended in the way they have been. He and Brigadier-General Ware, working under him, are really responsible for the organization which, although it cannot do in any enemy countries what it has done in allied countries, has done its best for the graves of our fallen men. I am sure the Conference will appreciate those efforts.

CHAIRMAN: I am sure it will, and I hope Lord Derby will convey to the Adjutant-General our warm appreciation.

Sir ROBERT BORDEN: I agree most heartily in that.

Lord DERBY: May I convey that?

CHAIRMAN: Yes.

Mr. MASSEY: It is a sacred duty to attend to these graves, and I hope it will not be neglected either now or for many centuries to come.

Mr. HAZEN: I have been glancing at the financial clauses in this Charter while I have been sitting here, and it appears to me that it is somewhat indefinite as to what provision is going to be made in order to obtain money for the purposes of this Commission for the keeping of these graves in proper condition.

Sir JOSEPH WARD: Is not that a matter for suggestion in the Charter?

Mr. HAZEN: Is not this the time to make a suggestion? It seems to be contemplated that an appeal for funds shall be made to the public. I want to put myself on record as being absolutely opposed to any such idea as making a public appeal for subscriptions or donations.

General SMUTS: That is for monuments or something of the kind.

Mr. HAZEN: I want to put myself on record as against any such method of getting money for the purpose of carrying on the work of this Commission. I do not think the care of the graves of the men who have made the supreme sacrifice for the Empire in the present War should depend in any measure upon voluntary subscriptions made by the public, although I believe there might be a most generous response to any such appeal if it were made at the present time. The care of these graves is to be in per-

petuity, and it seems to me that the care of these graves should be by funds provided by the State, that is, by the British Isles and by the Dominions, whose sons came over here to fight in this great struggle and have made the supreme sacrifice in so doing. Therefore my idea of the practical working out of it would be that the Commission, when constituted, should make an estimate of what money will be required, and that that should be distributed in fair proportions according to some method that may be agreed upon between the British Isles and the Dominions overseas which have sent forces over here, and whose sons lie buried in these different theatres of war. That expense, whatever it might be, will be met by the Dominions overseas heartily and without the slightest hesitation or opposition at all. I would like to put on record here my view that the funds for this purpose ought to be provided out of the funds of the State, and that there should be no appeal for voluntary subscriptions to the public for this purpose. Subsection (2) of clause 1 of Part VI. clearly contemplates subscriptions of that sort; it says that the Commision is authorized "to appeal for and receive public subscriptions and donations in furtherance of the purposes of this Our Charter." And then it contemplates that money shall be left to them by bequest, gift, or grant. That is the reason I bring this matter before the Conference now. I think it is one of importance and ought to be determined.

Lord Derby: I agree with you. I think it wants altering, but I think there are certain public subscriptions we may legitimately accept—not subscriptions to keep up the graves, but subscriptions which regiments will want to collect to erect monuments to their own men. What we want is to provide for the cases where regiments get subscriptions for monuments for their own men. We want to put it, I agree, in rather a different form, but this body should have the power of accepting that money and putting it to the use for which it is collected.

Mr. Hazen: That is a very different thing from appealing for funds to the public.

Mr. Chamberlain: I submit that subsection (2) is unnecessary and that you have all the power you want in subsection (3).

Lord Derby: I think so.

Mr. Chamberlain: The invidious thing is the first words of subsection (2), "to appeals for" funds. I think we all agree with what Mr. Hazen says.

Mr. Hazen: If a regiment asks the Commission for permission to erect a monument of the officers and men of the regiment who have fallen, that would be naturally granted at once; but, on the other hand, the Commission would not appeal to those regiments and ask them to raise funds for that purpose.

Lord Derby: I agree, and I will move that subsection (2) be omitted.

General Ware: If you leave us power to "receive," we will take out subsection (2), but under subsection (3) we have no power to receive.

Lord Derby: Let us strike out subsection (2) altogether.

Mr. Hazen: How do you propose to get the money? Do you propose that the Commission should make an estimate from year to year of the amount required and that then they should ask the Overseas Dominions and the British Parliament to vote the necessary funds in such proportion as may be thought equitable and right?

Lord Derby: Yes, that is what I would like.

Sir Robert Borden: There is another matter I would like to suggest in connection with that; I do not know that it need be the subject of a formal Resolution.

Chairman: May we take out subsection (2) formally? Lord Derby proposes to withdraw subsection (2) of clause 1 under the heading "VI.—Financial." Is that your pleasure?

Lord Derby: That is, the words, "To appeal for and receive public subscriptions and donations in furtherance of the purposes of this Our Charter," subsection (2) of clause 1 of Part VI.

Sir JOSEPH WARD: I am not sure that it should be struck out.

Mr. HAZEN: They will be entitled to receive "all funds."

Sir JOSEPH WARD: I think it will require amending only. Suppose the relatives of those men desire to send along some funds for a particular purpose?

CHAIRMAN: Surely that is met by subsection (3)?

LORD DERBY: We could put in there "To receive and administer all funds which may be given." That would meet it, Sir Joseph.

Mr. CHAMBERLAIN: You have got the words "or received from any other source" and now you will have "To receive and administer all funds which may be given or received from any other source."

Mr. ROGERS: That covers it.

CHAIRMAN: The words "or received" are all-sufficient in subsection (3).

General WARE: Considerable sums have already been collected by regiments, and we are under great pressure from relatives and regiments to erect permanent memorials which are forbidden now, as soon as possible.

Mr. CHAMBERLAIN: In subsection (3) you have power to administer any funds you receive from any source.

Mr. MASSEY: I entirely agree.

General WARE: "To receive and administer?"

CHAIRMAN: I think you should consider before you put in the words "receive and" here. I have some experience of draftsmanship and I think that would read very oddly. You have in subsection (3) the words now "to administer" and "or receive," and I am quite sure that any Government draftsman would say that the words "or received" would cover any funds, and that it would not be necessary to put in also "and receive."

Sir ROBERT BORDEN: They should only be put in if necessary.

General WARE: It is really a matter for the Government draftsman.

CHAIRMAN: We can take out subsection (2).

Mr. MASSEY: I want to speak on this, Sir, if I have the right to do so.

CHAIRMAN: Yes.

Mr. MASSEY: Before we leave this subject I should like to say I thoroughly agree with the opinion expressed by Mr. Hazen. I think it is absolutely right that no appeal should be made to the public for subscriptions or contributions. The maintenance of these graveyards is a national duty, and, in the first instance, they should be maintained out of the public funds of Britain and the British Dominions; but I do not see any objection to generously-minded people, who perhaps have relatives buried in these graveyards, coming along with sums for the purpose of erecting monuments. I do think that the provision should be kept in to allow of these sums.

CHAIRMAN: That is in subsection (3).

Mr. MASSEY: Exactly. I believe the whole power required is in subsection (3), and therefore, as far as I am concerned, I see no objection to subsection (2) being struck out.

Sir ROBERT BORDEN: If that is disposed of I might mention another matter. I do not observe any provision for a report from the Commission to the several Governments which will contribute the necessary funds for the purpose of keeping up the graves. If the Governments of the Overseas Dominions, as well as the British Government, contribute, as undoubtedly they will, to the support of this most necessary work, it seems to me that there should be a provision in the Charter for an official report to all the Governments which so contribute, in order that such report may be laid before each Parliament, and in order that Parliament may have proper information as to the

expenditure of the moneys which are to be contributed and generally as to the work of the Commission.

Mr. MASSEY: I quite agree.

Sir SATYENDRA SINHA: Is not that provided for under Part VIII headed "Annual Report and Statement of Accounts"?

General WARE: It does not say to whom the report is to be addressed. The only provision made is for drawing up a report. I understand that the Prime Minister of Canada suggests that these reports should be made to the different Governments of the Empire.

Mr. HAZEN: I see that every member of the Commission is entitled to receive a copy.

Sir ROBERT BORDEN: But that is not quite the same thing.

Sir JOSEPH WARD: Sir Robert Borden is, in my opinion, quite right. A report should go to the Governments who are furnishing the money.

Mr. MASSEY: I see, as a matter of fact, I made a note of this on reading the Memorandum and my note was as follows: "Such Commission should report annually to the Imperial Government and the Governments of the Oversea Dominions of the Empire on its financial position and other matters of importance connected with its duties." I think it should be provided for.

Sir ROBERT BORDEN: It should be in the Charter.

Mr. MASSEY: Certainly.

Sir ROBERT BORDEN: I entirely agree. Perhaps it is unnecessary to move a formal Resolution if you will accept it as a direction.

CHAIRMAN: Will you accept that?

General WARE: Yes.

Mr. HAZEN: Is this now finally disposed of—at the meeting this morning—because the discussion which has taken place shows how necessary it is to consider it very carefully?

CHAIRMAN: We are specially reserving the right that the Charter should be amended.

Sir ROBERT BORDEN: The Charter is to be circulated and considered.

Mr. HAZEN: If it could be circulated a day or two in advance of the meeting where it is to be considered it would expedite matters very much and save time.

CHAIRMAN: I have made a note of that. Is there anything else which arises now?

Mr. MASSEY: I think the Charter, before it is finally disposed of, should certainly be shown with the amendments in it.

Sir ROBERT BORDEN: That is understood.*

CHAIRMAN: You do not want another copy of it in its present form?

Mr. MASSEY: No.

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* NOTE.—The draft Charter printed on pp. 146-156 shows these amendements in Italic.

NINTH DAY.

Monday, 16th April, 1917.

The Imperial War Conference met at the Colonial Office at 11 a.m.

PRESENT:

The Right Honourable Walter H. Long, M.P., Secretary of State for the Colonies (Chairman of the Conference).

Canada.

The Right Honourable Sir R. Borden, G.C.M.G., Prime Minister.
The Honourable Sir G. H. Perley, K.C.M.G., Minister of Overseas Military Forces.
The Honourable J. D. Hazen, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. Massey, Prime Minister.
The Right Honourable Sir Joseph Ward, Bart, K.C.M.G., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. Smuts, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. Morris, K.C.M.G., Prime Minister.

India.

The Right Honourable A. Chamberlain, Secretary of State for India.
Sir J. S. Meston, K.C.S.I., Lieutenant-Governor of the United Provinces.
Colonel His Highness The Maharaja of Bikaner, G.C.S.I., G.C.I.E., A.D.C.
Sir S. P. Sinha, Member Designate of the Executive Council of the Governor of Bengal.
Mr. H. C. M. Lambert, C.B., Secretary to the Conference.
Mr. E. J. Harding, Junior Assistant Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. Fiddes, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.
Mr. A. D. Steel-Maitland, M.P., Parliamentary Under Secretary of State for the Colonies.
Lieutenant-Colonel W. Dally Jones, Assistant Secretary of the War Cabinet, and
Private Secretaries.

Care of Soldiers' Graves.

CHAIRMAN: I ought to inform the Conference that in regard to the graves arrangement I have asked the Foreign Office to be good enough to convey to the French Government in very warm terms the thanks of the Conference, representing the British Empire, for their splendid generosity in giving in perpetuity the land for the various cemeteries in France.

Mr. MASSEY: Will a copy of the telegram so sent by the Foreign Office be placed on record along with the proceedings of the Conference?

CHAIRMAN: Certainly. A copy of the telegram sent by the Foreign Office ought to be on record.*

Representation of India at future Imperial Conferences.

With regard to the Resolution governing India and its publication, the Indian Government are very anxious that it should be published, and I have telegraphed to the Commonwealth of Australia, and at the end of the message I said: "The Indian Government is anxious for immediate publication in view of good effect which will be produced there. Having regard to your despatch of January 9, I presume your Ministers will see no objection if the Conference, who will be consulted on Monday next, so decide." Would the Conference agree to the publication of the Resolution about the inclusion of India, subject to our receiving a satisfactory reply from Australia, which has not come yet, but which will no doubt be satisfactory, because the despatch referred to approved of the matter in principle before?

Sir EDWARD MORRIS: I think so.

Sir ROBERT BORDEN: I do not see any objection to that.

Mr. CHAMBERLAIN: Then I take it I shall hear from you, Sir, as soon as you have received this?

CHAIRMAN: Yes, as soon as I receive an answer I will let you know.

Mr. CHAMBERLAIN: Thank you.†

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Constitution of the Empire.

Sir ROBERT BORDEN: I should like to make a slight amendment in the terms of the Resolution by substituting for the word "thereafter," at the end of the first paragraph the words "as soon as possible after the cessation of hostilities." It would then read in this way: "The Imperial War Conference are of opinion that the readjustment of the constitutional relations of the component parts of the Empire is too important and intricate a subject to be dealt with during the War and that it should form the subject of a special Imperial Conference to be summoned as soon as possible after the cessation of hostilities. They deem it their duty, however, to place on record their view that any such readjustment, while thoroughly preserving all existing powers of self-government and complete control of domestic affairs, should be based upon a full recognition of the Dominions as autonomous nations of an Imperial Commonwealth, should recognize their right to an adequate voice in foreign policy and in foreign relations, and should provide effective arrangements for continuous consultation in all important matters of common Imperial concern and for such necessary concerted action founded on consultation as the several Governments may determine."

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*See despatch printed on pp. 160.

† NOTE.—The Resolution was subsequently published accordingly.

This subject is one upon which I might speak at great length. Many proposals with regard to the subject have been discussed in the United Kingdom and in all the Dominions of the Empire for many years past in all possible phases. There can be no doubt as to its importance. The growth of the Dominions in wealth and population has been very remarkable during the past fifty years, especially during the last twenty-five years. Their future growth we hope—and, more than that we believe—will be even more marked. Foreign policy and foreign relations, with which is intimately connected the question of the common defence of the Empire, have been under the immediate control of the Government of the United Kingdom, responsible to the Paliament of the United Kingdom. It would appear from the views of constitutional writers that this condition during the later phases of the growth of the Oversea Dominions has proceeded on a theory of trusteeship which, whatever may be said of it in the past, is certain to prove not only entirely inadequate to the needs of the Empire but incompatible with the aspirations of the people of the Dominions in the future. I have spoken of the growth of the Dominions; it is by no means improbable that children now living will see their population surpass that of the United Kingdom. It is quite within the range of possibility that a single Dominion might grow to the extent which I have mentioned. Therefore it seems to me beyond question that the theory of trusteeship to which I have alluded cannot be continued indefinitely in the future.

In approaching the subject one is impressed especially with this consideration, that the greatest intellects of the Empire in the past have miscalculated the conditions that would develop in the Dominions, and have failed to foresee the relations of the Empire under the policy of developing full powers of self-government which was supposed to have the tendency of weakening, if not severing, the ties which unite the Dominions to the Mother Country. The policy of complete control in domestic affairs and complete autonomy in all local affais, instead of weakening the ties which unite the Empire, has very greatly strengthened them. It was said by a statesman of the highest capacity after that policy had been embarked upon (that is the policy of granting to the Dominions complete autonomy) that it was an absolute mistake, that it could only lead to the weakening and severance of relations, and that it would have been a wise policy to preserve in the United Kingdom control of the natural resources of the Dominions, and control over their fiscal policy; that this would have tended to unite the Empire, and regret was expressed that some such policy had not been maintained. All of us in the Dominions, and I think the people of the British Isles, realize now that any such policy would have had most unfortunate and, more than that, disastrous results. The policy which was supposed to weaken the Empire has really strengthened it, and I look forward to a development in the future along the line of an increasingly equal status between the Dominions and the Mother Country. It seems to me that the attainment of full citizenship, which involves a voice in foreign relations, will proceed along the line to which I have alluded. The nations of the Empire are really bound together by the tie of a common allegiance, by like institutions and ideals of democracy, and by like purposes. Such ties will bring the nations of the Empire together more closely upon the line which I have mentioned. I say this with a full understanding that it is unwise, having regard to the lessons of the past, for any of us to predict absolutely the developments of the future. But, nevertheless, the line of development which has been noticeable during the past twenty or twenty-five years seems to point unmistakably to that conclusion. Indeed, the action of the Dominions in this war has made the spirit of nationhood splendidly manifest. The fact that one million men in the Dominions have taken up arms for the defence of the Empire's existence and the maintenance of its future influence is so significant a lesson that one would be unwise not to have it constantly in mind. I believe that the Dominions fully realise the ideal of an Imperial Commonwealth of United Nations and one should not forget the importance of the Crown as a tie between the Dominions and the Mother Country. His Majesty King George V is especially associated with the Oversea Dominions,

because he is the first Sovereign who, before he ascended the Throne, availed himself of the opportunity to visit all parts of the Empire and to make himself acquainted with the ideals and aspirations of their people. And the Queen was recognised throughout the Dominions of the Empire as distinctively a British princess before her marriage to the King.

Now the subject of the future relations of the Empire is not only an important but a very complex one. I would not make any conjectures beyond what I have said as to the ultimate solution. It is manifest, I think, that under the present conditions it would be unwise for this Conference to attempt to enter upon that subject. I hope that the delegation which will come to the next Conference from the Dominion which I have the honour to represent will be representative of all political parties. A subject of the vast importance which is involved in the consideration of future inter-Imperial relations would seem to demand that condition if it is to be approached in a proper spirit, because we all agree, I am sure, that so great a question ought not to be made, either here or in the Dominions, a question of party strife or party controversy if it can possibly be prevented.

There has been a very remarkable advance even since we arrived in the British Islands; it is a development which has greatly impressed me, and it seems to be due to the force of great events rather than to any premeditation or design. The fact that an Imperial War Cabinet as well as a British War Cabinet are sitting in London to-day is in itself of great significance. There may be possibly some guidance in that step for the future relations which will give to the Overseas Dominions their proper voice in the great matters which I have mentioned. However, it would be unwise to attempt to forecast. The Resolution which I have proposed does not attempt to do so: it merely proposes that a special Imperial Conference shall be summoned as soon as possible after the War; and it does at the same time place on record the view of this Conference that any readjustment of relations must, in the first place, preserve all the existing powers of self-government and complete control of domestic affairs, that it must be based on a complete recognition of the Dominions as autonomous nations of an Imperial Commonwealth, and must fully recognise their right to a voice in foreign policy and in foreign relations The willing acceptance of that principle by the Mother Country is an immense stride in advance.

I have had the advantage of discussing the terms of the Resolution to some extent with my colleagues round this board, and I have made them all acquainted with the principle which is embodied in the Resolution I hope that it may commend itself to their judgment. I hope further that the Conference to be summoned will approach its deliberations and frame its conclusions on the lessons of the past, so that the future structure of the Empire may be erected on the sure and firm foundations of freedom and co-operation, autonomy and unity.

CHAIRMAN: Do you move that Resolution now?

Sir ROBERT BORDEN: Yes, I move the Resolution.

CHAIRMAN: It will not be necessary for me to read it again.

Mr. MASSEY: I will second that formally, if it is necessary to second it, and in doing so I will say that I agree thoroughly with almost every opinion that Sir Robert Borden has expressed in moving the Resolution which is now before the Conference, and I agree with him particularly in the opinion which is really expressed in the Motion itself, that at a time like this, when the statesmen of the Empire are engaged in carrying on our share of the most serious war which has ever occupied our attention and when the subject of the War is occupying nearly the whole of the attention of most of the thinking people of the British Empire, it is impossible to take in hand such an important question as the "Reorganization of the Empire" and, as expressed in the Motion, "the readjustment of the constitutional relations of its component parts." That will have to stand over, so far as this Conference is concerned, until the

War comes to an end, and until a more representative Conference can be got together than the present one. Personally, I should like to see a much larger Conference convened for the special purpose which Sir Robert Borden has in view, and I should like to see it representative not only of the Governments of the different Dominions and of the different parts of the Empire, but I should like to see it representative, if it is possible so to arrange it, of the different parties in the different Dominions of the Empire. If we are going to raise this question above party—and I think in its importance it is far and away beyond anything in the way of party politics, then we must give the different political parties in the Empire the opportunity of coming together at the Council Board and expressing their opinions, and, if their opinions are thought worthy of being adopted, that opportunity should be given by the other members of the Conference which it is intended to convene. When I say the parties, I am not referring to all the parties, because there may be small parties that it might not be necessary to have represented; but I am thinking of the more important parties, such as we understand them in the different countries. I know this is not a new idea, and I know that something in this way has been suggested at previous ordinary Imperial Conferences, although, so far as I can recollect, it was not given effect to to any extent, if at all.

I thoroughly agree, too, with the point Sir Robert Borden made when he stated that in these matters we have to look forward and we have, in particular, to be guided by the lessons of the War. I hope, Mr. Long, that point will be borne in mind when the Conference meets, and especially with regard to population. I have not the very slightest doubt that Sir Robert Borden was right in saying that there are people now living who will see a larger population in the different Dominions than the population of what is called the United Kingdom to-day; I have no doubt that will be the case. I believe a very important migration will take place when the War comes to an end which in the ordinary course will have its effect upon the different Dominions; and this War itself has directed the attention of people in every part of the United Kingdom to the possibilities of the Dominions. I will not argue further on that line because, as a matter of fact, there is another Motion in the Order Paper standing in my own name which will give a better opportunity for discussing it, but in the main I agree with the opinions expressed by Sir Robert Borden.

Then the Prime Minister of Canada also referred to the necessity for considering and maintaining—I will not go to the length of saying complete, but, the existing autonomy of the different parts of the Empire. In any arrangement that may be made in the future for the closer unity of the different portions of the Empire and for drawing them more closely together and keeping them together, I am quite certain it is necessary to make the ties that hold the different parts together as easily carried as it is possible to arrange. A great statesman who lived one hundred years ago or thereabouts and whose name frequently comes up in matters of this kind expressed the opinion, looking forward even from his time, that if the different parts of the Empire were to be kept together the bonds to hold them would need to be "while stronger than steel as light as silk." Whatever bonds may be arranged will have to be arranged in such a way that they will not chafe and not seriously inconvenience British citizens in any part of the Empire.

Sir Robert Borden referred to our fiscal arrangements. Here particularly, and I mention this now with the object of placing my opinion on record, I think it is not desirable for any Imperial organization of the future, whatever form that Imperial organization may take, to interfere with the fiscal arrangements of the different parts of the Empire any more than can possibly be helped. What I mean is that at present the younger nations of the Empire have the right to impose their own taxation in their own way and to collect their own revenue in their own way, and those rights, particularly, should not be attempted to be interfered with, because I am certain that any such interference would lead to very serious friction and probably

put this movement back for perhaps many years to come, and none of us desire to see that. Sir Robert Borden referred to the lessons of the past, and I think on an occasion like this there is not one of us who can forget what happened in connection with the breach between England and what were then the American Colonies a great many years ago. I hope that lesson will be borne in mind and that nothing of the sort will ever happen again in the history of the British Empire; but if it is not to happen, then a crisis such as that which led up to that very serious trouble and to the breach which followed must be avoided.

Speaking on this point, of course the question will be asked, "How is any such organization in the future to find money for carrying on the business of the Empire?" Well, personally I do not think it is a difficult question to answer, because I am confident that for the purpose of carrying on the organization, and for Imperial purposes generally, when the different Dominions, or different parts of the Empire, as the case may be, are asked for their share of the finance, and their share of the capital required, the necessary capital will be found, and will be forthcoming; only, as I said before, each part of the Empire must find it in its own way.

In the case of war and in the case of the possibilities of war we cannot forget that the present arrangement, loose as it has been, has worked very well indeed. Each part of the Empire has found troops, some of them have found ships, in proportion to their wealth and in proportion to their population, and I believe that arrangement may be continued with advantage to the whole of the Empire, and with benefit to the whole of its citizens. I know that numberless opinions have been expressed upon what ought to be done, innumerable pamphlets have been written and innumerable speeches have been delivered, and I am bound to say that all these writings and all these speeches and all these changes of opinion which have taken place during the last dozen years, particularly since the War commenced, have done a very great deal of good, inasmuch as they have set the population of the Empire thinking, and they have impressed people who had never studied the question previously with the potentialities of the Oversea Dominions and with the necessity of taking advantage of the present opportunity to bring the different parts of the Empire more closely together than ever before, and to bind them in such a way that they will not be likely to separate for many centuries to come, and I trust that they will never separate. Suggestions have been made at different times that we should at once consider the question of an Imperial Parliament dealing purely with Imperial questions and leaving local matters, or provincial matters (according to the manner of expression), to be dealt with by provincial or local legislatures elected for the purpose. I believe, and I have expressed this opinion previously publicly and otherwise, that such an arrangement will develop in course of time, but I do think that it would be a mistake at the present juncture to attempt too much. This matter is far too important to attempt to bring it rapidly into operation. I believe that every step that we take as citizens of the Empire in this connection has to be thought out very carefully before it is taken. If not, then we are likely to make mistakes and the present generation may not see any further advance than has been made up to the present.

A very great deal has been said in favour of an Imperial Parliament, and in theory there is not a very great deal to be said against it, subject to the limitations about which I have already expressed an opinion, that is the limitations particularly with regard to preserving the autonomy of the different parts of the self-governing Dominions of the Empire. There are others who think—and I have heard this opinion expressed—that the present arrangement which gives the Dominions a representation in the Cabinet of the Empire is a good one; and it is a good one; I thoroughly agree with that. Many people think that should be sufficient for quite a long time to come and that it should be continued, and I will offer my own opinion upon that point presently. I think that even this advance is far more

important than many of the people in the different parts of the Empire have up to the present realised. I think that when the Dominions were asked to send representatives from their Legislatures, from their Governments, to the Imperial War Cabinet, it was one of the most important events that had ever taken place in the history of the British Empire, and I am confident that posterity will look upon it from that point of view, and, speaking for myself, I appreciate fully everything which has been done.

And just let me say here, in case I forget before I bring my remarks to a close, that I would like to suggest that this Imperial Conference should express an opinion to the effect, or make a recommendation to the effect, that the present arrangement should continue until the Conference which we are all of opinion should be convened for the purpose mentioned in the Motion has met, and until the new arrangement, whatever it may be, comes into operation. As an Imperialist I feel somewhat strongly on this point. As Imperialists we have gained a very great deal. I know that public opinion in Britain and public opinion in the Dominions is in favour of going forward rather than going back, and I express my own personal opinion when I say that it would be a retrograde step if we allowed this Conference to come to an end without expressing our appreciation of what has been done in the way of representation of the Dominions, and expressing our opinion in favour of the present representation continuing until something better has been agreed upon and has come into operation.

Then there is another school, who advance the theory that anything in the way of an Imperial Parliament will not be likely to work so well as something in the way of what is called an Imperial Council—again, of course, representatives of the different Dominions—which would not have the powers that would be possessed by the Imperial Cabinet, but which would meet annually, say, and which would deal with all matters of Imperial importance, and would in its turn make representation to the Parliaments of the different Dominions and to the Parliament of the United Kingdom itself.

My own idea is, that if we can make such arrangements as will allow the present representation of the Imperial Cabinet to continue, even when the War comes to an end, if we can also along with that have a representative Imperial Council, then, I think, a very great deal will have been done and a very long step forward will have been taken along the road on which we are so anxious to travel. The Imperial Conference, which has been in the habit of meeting every four years, and which in itself I am bound to say was a very important advance, admitted the right of the Dominions to be consulted in connection with Imperial affairs. But something more than that is required at present, and something more than that must result from the position the Dominions have taken up during the present War.

Speaking of the present War, I may say I am not one of those who think that the Dominions came into the War simply to assist what we are all pleased and proud to call the Mother Country. I do not look at it from that point of view at all. We came into the War as Oversea Dominions of the Empire because we are part of the Empire and because the Empire to which we belong was being attacked, and if we had not come into the War in the way that has happened and which we are all proud of and pleased with—and let me say here not one of us would go back upon it—I have no hesitation in saying that as British citizens and as citizens of no unimportant parts of the world now, and which are likely to be much more important in years to come, we should not have done our duty. We are glad to think that as a result of what has taken place, instead of, as many people imagined would be the case, that at the first shock of war the Empire would go to pieces, there is a better spirit throughout the Empire to-day than has ever obtained in past years at any time in its history; and I am glad to include in that the Empire of India which is represented at this Conference, and which I believe will be represented at any Conferences to consider Imperial affairs that may take place in the future. Sir Robert Borden when speaking used a term which implies a very great deal. It is a term which I have

used myself on more than one occasion, and a term with the use of which I thoroughly agree, and that is the term "United Nations". We are coming together, not, as used to be considered, as the United Kingdom with its dependencies. That is not the position to-day. We are coming together as United Nations of the Empire and on equal terms so far as the populations of the different parts of the Empire will allow.

I was pleased to hear the reference of Sir Robert Borden to the Monarchy. The subject of form of Government is occupying the attention, in view of recent happenings, of liberty-loving people all over the world. There is no doubt that something in the way of more democratic and more representative forms of government is in the air; it is in the atmosphere, so to speak, and we cannot get away from it; but in case there should be any misapprehension in the minds of people who are interested in this Conference or who may think it worth while to read the proceedings or the records of this Conference in the future, I would just like to say that I, speaking as a British citizen, believe that the British Empire has to-day probably the freest and most progressive form of government that the world has ever seen. We do not propose to go back upon that in the very slightest. But following up that point I would just like to say that, in my opinion, the British monarchy is the keystone of the Imperial arch. I do not need to elaborate that point, but when I express that opinion I think it speaks for itself, and I am quite certain in expressing it I have expressed an opinion with which every member of this Conference will agree.

I do not think I need to say any more on the subject except just this, that one of your great British statesmen and poets made the statement that the British Constitution had broadened down from precedent to precedent. Precedents are now following each other in rapid succession. History is being made very rapidly, and I have no doubt as time goes on and if we take advantage of the opportunities that offer—and they are offering now—we shall be able to arrange the Constitution which, as public men representing important parts of the British Empire, we are privileged to deal with, in a way which will provide for the future possibilities and the future wants of the great Empire to which we belong.

I would like to suggest to the Conference and to Sir Robert Borden that he should include in, or consent to be added to, his motion something on the lines I have already referred to. I had drafted a motion, but, as a matter of fact, I had forgotten that this matter was coming up to-day and, therefore, I was not prepared to speak upon it, and perhaps the opinions I have expressed have been somewhat disconnected in consequence, but the one ideal I have in mind, which I am going to suggest to Sir Robert Borden and to the Conference, is that something in this way should be added: "That until such Conference"—that is the special Conference contemplated—"has met, and arrived at its conclusions, this Imperial War Conference recommends "that the present arrangements by which representatives of the Dominions and of "India occupy seats in the Imperial Cabinet shall continue."

I second the Resolution if it is necessary.

CHAIRMAN: This Resolution is proposed by Sir Robert Borden and seconded by Mr. Massey. Does any other member of the Conference desire to say anything before the motion is put?

General SMUTS: I should like to say a few words, if I may. I need hardly point out that this is far and away the most important point on the agenda of our Conference this time. The British Empire is the most important and fascinating problem in political and constitutional government which the world has ever seen. Whenever we come to this question of a proper constitution for this Empire we touch on the very gravest and most important issues. As a matter of fact we are the only group of nations that has ever successfully existed. People talk about a league of nations and international government, but the only successful experiment in international government that has ever been made is the British Empire, founded

on principles which appeal to the highest political ideals of mankind. Founded on liberal principles, and principles of freedom and equality, it has continued to exist for a good time now, and our hope is that the basis may be so laid for the future that it may become an instrument for good, not only in the Empire but in the whole world.

The subject matter of this Resolution, as Sir Robert Borden has stated, has been carefully considered, and although, quite properly, a definite decision on the main problem is to be postponed for future action by a more important Conference than this, yet certain principles are affirmed here in this Resolution which are very important and far reaching. The Resolution refers in the first place to the question of the status of the Self-governing Dominions. That matter has already been referred to both by Sir Robert Borden and by Mr. Massey, and I wish to say a few words in reference to the point. The Resolution says that any future settlement that is come to must "be based upon a full recognition of the Dominions as autonomous Nations of an Imperial Commonwealth." The whole question of the future status of the Dominions, is therefore raised in this Resolution. So far the British Empire has developed along natural lines. The Dominions started as Colonies and as settlements of the Mother Country and of the British Isles. They started as Crown Colonies; they developed into Self-governing Colonies, and now they have become the present Dominions. Other parts of the world have been added to the Empire, until to-day we have really a congeries of nations. These old Colonies and the present Dominions have in course of time increased in importance, increased in population, and in economic importance, and are to-day already playing a part in the world which seems to my mind to make it very necessary that their status should be very seriously considered, and should be improved. Too much, if I may say so, of the old ideas still clings to the new organism which is growing. I think that although in practice there is great freedom, yet in actual theory the status of the Dominions is of a subject character. Whatever we may say, and whatever we may think, we are subject Provinces of Great Britain. That is the actual theory of the Constitution, and in many ways which I need not specify to-day that theory still permeates practice to some extent. I think that is one of the most important questions—one of the most important matters—that will have to be dealt with when this question of our future constitutional relations on a better and more permanent basis comes to be considered. The Status of the Dominions as equal Nations of the Empire will have to be recognised to a very large extent. The Governments of the Dominions as equal Governments of the King in the British Commonwealth will have to be considered far more fully than that is done to-day, at any rate in the theory of the Constitution if not in practice. That is the most important principle laid down in the second part of this Resolution, that there should be "a full recognition of the Dominions as autonomous nations." And to strengthen the point the resolution goes on to affirm that the existing powers of self-government should not be interfered with. Of course there is a good deal of feeling of natural and justifiable jealousy in the Dominions as to the rights which they have acquired and which they do not like to be tampered with, and, naturally, I think it is very wise to add this to the Resolution, that their existing powers of self-government should not be tampered with. If that is so it follows that one theory, one proposed solution of our future constitutional relations, is negatived, by this Resolution. If this Resolution is passed, then one possible solution is negatived, and that is the Federal solution. The idea of a future Imperial Parliament and a future Imperial Executive is negatived by implication by the terms of this Resolution. The idea on which this Resolution is based is rather that the Empire would develop on the lines upon which it has developed hitherto, that there would be more freedom and more equality in all its constituent parts; that they will continue to legislate for themselves and continue to govern themselves; that whatever executive action has to be taken, even in common concerns, would have to be determined, as the last paragraph says, by "the several Governments" of the Empire, and the idea of a Federal

solution is therefore negatived, and, I think, very wisely, because it seems to me that the circumstances of the Empire entirely preclude the Federal solution. Here we are, as I say, a group of nations spread over the whole world speaking different languages, belonging to different races with entirely different economic circumstances, and to attempt to run even the common concerns of that group of nations by means of a Central Parliament and a Central Executive is, to my mind, absolutely to court disaster. The experiment has been tried in the United States and, it is said, with great success. Well, of course, the experiment in the United States has not lasted very long, and we must see whether it will continue successfully under the stress of the great experience into which America is now entering. But I am now informed by those who are very close observers of American government and American institutions that they are certain that the experiment has reached its utmost limits. In that case you have a compact country, a compact half continent, where people live together, where they all go through the same mould, and where they are all formed more or less on the same lines; whereas in this Empire you have an entirely different state of affairs. The young nations are developing on their own lines; the young nations are growing into Great Powers, and it will be impossible to attempt to govern them in future by one common Legislature and one common Executive.

Then if we are to continue as nations and to grow as nations and govern ourselves as nations the great question arises: How are we to keep this Empire together? That is the other important point, I take it, in this Resolution—the point which recognises that there should be effective arrangements for continuous consultation in all common concerns, especially in concerns which are mentioned there specifically, that is foreign policy; but in all common concerns that there should be effective arrangements for continuous consultation. Setting aside the Federal solution as not applicable to this Empire, which is not merely a State but a system of States, half the world in itself—setting aside that solution, the question arises how you are to keep the different parts together? and it can only be done on the basis of freedom and equality which has existed hitherto, only the machinery would have to be arranged on which that system could be worked. I think it will not pass the wit of man to devise ways of continuous consultation—not intermittent, not every four years as we have had hitherto, but continuous consultation. Sir Robert Borden has pointed out in that great speech of his at the Parliamentary dinner—one of the finest speeches I have ever listened to, and one of the wisest I have ever listened to—that a practice which has now arisen spontaneously of a double Cabinet may in the future provide the germs of a solution. I express no opinion upon that, because very intricate constitutional questions are bound up with that, and it is quite possible to arrange this system of consultation and continuous Conference even on a different basis and yet to make it perfectly workable and feasible as a means of keeping the different parts of the Empire together. It seems to me that some such machinery will have to be devised and that it will not be difficult to devise it once we come to sit round the table and discuss the matter carefully. In that way it will be possible, while leaving full executive action to the various more or less equal Governments of the Empire, while leaving full executive responsibility to them, to see that in all important concerns there is consultation and continuous consultation; that there is an exchange of ideas and that the system, whilst preserving freedom and equality in its parts, will work with a strong sense of unity at the centre.

I think, if this Resolution is passed, Sir, we will have taken an immense step forward in the history of the Empire. If we pass no other Resolution at this Conference than this one, I am sure that we will have done a good day's work for this Empire. We are emerging out of one area and we are entering upon another where much greater problems will confront us than ever before. So far it has been possible for us each to go his own way, meeting once in so many years. In future it will be necessary for us to keep much more closely in touch with each other.

These are the principles which are affirmed in this Resolution, leaving the actual solution of our constitutional problem to be dealt with hereafter. Those are the principles which are affirmed here, and I heartily endorse them and give my adhesion to this Resolution as it stands here.

Sir EDWARD MORRIS: I should like to add my support to this Resolution. I would like to say that, through the courtesy of Sir Robert Borden, I have had an opportunity of carefully studying the nature of the Resolution, and I think it would be wise, probably, at the present time not to go beyond this Resolution. Certainly this is not the time to discuss any changes in connection with the relations which exist between the Dominions and the Mother Country, and I think the proposal to postpone the further consideration to another Conference rather a good one.

It appears to me that the position before the War was this: All the Dominions had complete autonomy, even practically to the question of Treaty making, and if they were not consulted and had no part in the question of defence and in the question of foreign relations, it was because they did not contribute. The whole cost of running the Empire from a defence standpoint and from the foreign relations standpoint, and everything in relation to the acquisition of new territories and new States for the Empire, was accomplished out of the Imperial Exchequer. But in all other matters the Colonies as they have been termed, the Dominions, have enjoyed the full benefits and advantages of responsible Government, and that has been year after year broadened out. The question then comes whether these scattered Dominions, these wide-flung possessions, can be brought closer together from a constitutional point of view. This Resolution does not call upon us to consider that question. We are here now taking part in the proceedings of the Imperial War Cabinet, and we have been invited here to take part in the discussion of the terms of peace, principally, I take it, in consideration of the part which the Dominions have taken in this War. Whether it would be wise to alter this Resolution by Mr. Massey's suggestion to continue the present system would require, I think, a good deal of discussion and consideration, because, after all, whilst we are advising in relation to these serious problems in connection with the terms of peace and the carrying on of the War, we have no constitutional power to bind the Parliaments that we represent. I do not mean by that to say that the various Parliaments in the various Oversea Dominions would not gladly endorse anything that might be done here. It all comes down to the mere question of finding some machinery which in a permanent and responsible form will continue what is now being done by the War Cabinet, if that is desirable.

In the past Conferences, some of which I have had the advantage of taking part in myself, this very question came up about an Imperial Parliament and an Imperial Council, but there were always very grave difficulties in the way of establishing anything of a permanent character, and it seems to me now that this Resolution whilst, as General Smuts has very wisely pointed out, it affirms, if necessary, the present position of the Dominions as regards their authority and autonomy and control over their own affairs, leaves it open to some future Conference to discuss the possibilities of having some machinery in the nature of consultation to deal with questions of foreign policy and the defence of the Empire.

I was very glad that Sir Robert Borden in his opening remarks referred to the position to-day of this country in its relation to the monarchy, especially in view of the changes which are taking place in other countries. Some of us who live near republican institutions and have had opportunities of studying others, I think will agree that the monarchs in this country, at least the late Queen Victoria and King Edward as well as the present monarch, have made it possible for us, whilst admiring some of the principles in republican institutions, to still continue to believe in the wisdom of monarchical institutions. One thing it gives us, at least, and that is an appeal. Every subject has an appeal to the Chief Magistrate of the land, who is not a party-politician and who is not placed in the position he holds by any party or by the funds of any party, but stands as the representative of all, and rarely in this country

interferes in any matters except in the interest of the public and as between the public and the legislators. For that reason I have very much pleasure in supporting the Resolution as proposed, with the slight amendment which I understand is to be proposed later in relation to the great Government of India.

Sir SATYENDRA SINHA: Sir, I should like, while supporting this Resolution, to make what I consider to be a merely verbal alteration, because I am certain that it could not be intentionally meant to exclude India, especially after the Resolution which this Conference has already passed. I therefore propose that we should add to the Resolution, in the second paragraph, after the words "upon a full recognition of the Dominions as autonomous nations of an Imperial Commonwealth," the words "and of India as an important portion of the same." The Resolution was drafted, of course, with special reference to the Self-governing Dominions, but, as I said, it could not have been intended to exclude India from participation in the arrangements which are recommended for the purpose of representation in foreign policy and in foreign relations. The foreign policy and the foreign relations of the Empire are to a very large extent concerned with India, and, therefore, it is only right that India should be represented in all consultations for the purpose of dealing with such foreign policy and foreign relations. As a corollary to that amendment I propose another consequential one, namely, that instead of the words "should recognise their right to an adequate voice in foreign policy and in foreign relations," in order to make it perfectly clear we should say "in order to recognise the right of the Dominions and of India to an adequate voice in foreign policy," and so on. It is with some diffidence that I address the Conference and ask for this amendment to be made, but I do so principally on the assurance that it is bound to be acceptable, having regard to the attitude of the Conference already with regard to India.

I do not desire to take up the time of the Conference with anything further, except to say that I wish to associate myself on behalf of India with the sentiments that Sir Robert Borden expressed with regard to the monarchy. India has in a peculiar degree a sense of loyalty to the person and throne of the monarch in England, and it would, therefore, give the greatest satisfaction to my countrymen that this Conference should unequivocally express its declaration that the monarchical form of government, as it is, is the best suited to the requirements of the Empire.

Sir ROBERT BORDEN: Mr. Chairman, I merely want to say that, so far as India is concerned, I accept most willingly the proposed amendment, and I am very happy to do so. Indeed, through the presence of the Secretary of State for India in the British Cabinet, India already has had perhaps a greater voice in foreign relations than the Overseas Dominions. It would seem entirely appropriate, therefore, that the Resolution should receive this amendment, and I have no doubt, under the circumstances, it does not amount to more than a verbal amendment. We hope to come into a new relation with the Mother Country, which will give us a voice that has been wanting in the past so far as we are concerned, and which, for the reasons I have mentioned, India has perhaps enjoyed to a certain extent.

Might I just say one word with regard to the proposed amendment suggested by Mr. Massey? I do not know whether or not that may be necessary. If there should be an announcement, as I understood there would be, by the Prime Minister of the United Kingdom that the present arrangement with regard to the Imperial Cabinet will be continued until the end of the War at least, I have no doubt that he might be willing but, of course, I am not sure about this to include in his announcement the proposal that it will be continued until the Conference which is to be summoned has reached its conclusions. Perhaps the chairman of the Conference will be able to tell us whether or not it is probable that some such announcement will be made.

CHAIRMAN: I think it better to reserve that until Thursday, when the Prime Minister will make his own statement, as it may not be quite right to anticipate the statement which he will make. I would suggest that the wider extension, if it be a wider extension, on that point should be left until Thursday, rather than added to this particular Resolution. After Thursday we can raise it again in the Conference, if necessary.

Mr. MASSEY: I am quite willing that this point should stand over. Whether the Prime Minister makes that announcement or not (it is to be hoped, after what you have said, that he will), I think we, as representatives of the Dominions, should express our appreciation of the very important change which has been made. I leave the matter for the present.

Sir ROBERT BORDEN: We could, if necessary, pass a distinct Resolution.

CHAIRMAN: I will now put the Resolution as amended. I understand the Prime Minister of Canada accepts the amendment, in which case it would run after the word "Commonwealth" "of an Imperial Commonwealth and of India as an important portion of the same." The next amendment is to leave out the words "their right" in the following line in order to insert the words "the right of the Dominions and of India."

Mr. MASSEY: I do not know whether this is the proper time for me to raise the other point.

Sir JOSEPH WARD: I want to speak on the main question.

Mr. MASSEY: I do not think we have stuck strictly to the proper order in these proceeding, and, I think, properly so. With regard to making the Conference more representative, is that the time for me to raise it or should that stand over until after the formal Debate is concluded?

CHAIRMAN: If you want to move an amendment to this Resolution, would it not be convenient to carry this Resolution in its present form, as amended to include India, and then discuss as a separate question, if necessary, the constitution of any future Conference?

General SMUTS: That is a separate question.

Mr. MASSEY: Very well, so long as it is understood that I propose to raise it, that is all I care about.

CHAIRMAN: Certainly.

Mr. MASSEY: And that it will not have in any way lessened its chance of being agreed to by being held over.

CHAIRMAN: Oh, no. Now, Sir Joseph Ward wants to make some remarks.

Sir JOSEPH WARD: I want to say a word or two on this very important matter, Mr. Long. This Resolution in itself is of extreme importance, but it proposes to defer the consideration of this question, as an indication that if there had not been a great war raging it would have been considered, it is not going to have what I would call a directing effect upon any men who may come to the next Conference, it is important because it affirms the desirability of a special Conference to deal with the matter after the war. I do not want in the least to derogate from the importance of what Sir Robert Borden has done, which was excellently supported by him in his remarks, and I recognize that his explanation of the matter was very clear. I am one of those who do not regard this question of autonomy, which has been raised from time to time, as of any importance from the point of view of its being interfered with. It is not possible for anybody to interfere with the self-government of any of the oversea countries, or the power of local autonomy which they possess, unless the people in each of these self-governing countries, through their Governments, do it themselves; and in the discussion of any system

which might be created with a view to governing Empire matters, not the internal affairs of the Empire, as I infer from General Smuts's remarks he fears, but the overriding vital Empire matters that the local Governments cannot deal effectively with their own account and of their own action, I regard the proposals as of supreme importance from the point of view of having some organization in existence that is going to be able to do the things that the individual countries cannot do themselves.

As a representative man, I for one would not be a party to anything done at any Imperial Conference which would in the least interfere with the legislative powers of the respective portions of the Empire either fiscally, for taxation purposes, or for local internal defence purposes. I would not be a party to that, and so far as it was in my power in my own country I would move heaven and earth to stop the people from being committed to any course that would bring about such a result; and it has not been suggested at this Conference that anything of the kind should be done. I would do all in my power to prevent the people from being committed to a line of action which would in the least abrogate their rights through their representatives of doing anything and everything in connection with the local affairs of their country that they have the power to do now, and that power should not be weakened in the slightest possible degree.

I want, while subscribing absolutely to the proposal here, to put on record that there should be no interference with the local autonomy of the oversea countries. I say that no power on earth except themselves and of their own free will can do so; the British Parliament cannot do it. No one can interfere with the local autonomy of South Africa, Australia, Canada, New Zealand, or any other portion of the self-governing Dominions unless they each separately so decide. That power remains under the Constitutions which they have within the rights of their own representatives and of their own people, and no British Government could move in the direction of weakening the power of local autonomy or self-government of any one of those countries unless they were asked in a proper constitutional way by the Governments of those countries to do so.

In discussing any future system which may be created for the purpose of dealing with the rapidly changing conditions within the Empire, we ought not to allow it to go on record and to allow sensitive or nervous people (and there are millions of them in the world, unhappily) to have the impression that in any future constructive machine which may be created we are going to weaken the powers which any portion of the Self-governing Dominions possesses now, because we are not, and I want to make that position perfectly clear. Having said this, I am not going to deal with the bogey of local autonomy any further on this occasion.

I do not believe it is possible for the development that is going on in the British Empire to continue satisfactorily unless there is a material change made by those who are responsible both in this country and in all the oversea countries upon two matters particularly. Those two matters stand out as of the first consequence. If they were not required to be provided for, there would be no need whatever for having an Empire Parliament or an Empire Council or representation from any of the oversea countries in an Imperial War Cabinet at the heart of the Empire at all. Those are the two vital questions of foreign policy and of naval defence. I may hold a different opinion to any other member of this Conference on one point to which I wish to allude, but I would oppose with all the power I possess in our portion of the Empire any interference whatever with our right to raise and to control our own system of internal defence. I do not look upon it as an essential for the future government of the British Empire that any overriding authority created constitutionally should either have the right, or be given the power, to interfere with the creation of a local army or armies that may, either now or in the future, be required to be raised in any portion of the Self-governing Dominions, either for their own internal defence or for

that part of external defence, by co-operation in times of Empire trouble or Empire requirements with the British army abroad. I do not look upon it as a necessity, or even as desirable, that any power should be transferred from the respective Governments to the central Government which would give them the least right to interfere with the control and disposition of the men who are raised for army purposes within the respective portions of the British Empire. Now I say that for this reason. Unless those who are responsible for sketching the proposed Constitution, even although it may be of a loose nature, at some future Conference or future Conferences—because I do not believe for a single moment that this is going to be settled at one Conference—are prepared to recognise that, I do not believe it is possible in practice for any of those oversea countries to give away the power of controlling their own land forces to any Empire Council or any Empire Parliament or any Imperial War Cabinet even with representatives upon that War Cabinet from any part of the British Empire. That must rest entirely with the local Government both in Britain and in each of the Oversea Dominions. There is also the question, and you cannot get away from it, in this country and in all parts of the Empire, of pride in the individuality of the men who form the army in the respective parts of the Empire, and there is nothing in the wide world can remove the sentimental power attached to that feeling. If it were not to-day for the feeling of pride that the Canadians have in their men, that the South Africans have in their men, that the Australians have in their men, that the New Zealanders have in their men, that the Indians have in their men, that the Pacific Islanders have in their men, and that the Crown Colonies have in their men individually, you would not have that powerful direct incentive to their creation (and sending to foreign lands) of powerful armies to be accessories to the fine, powerful, courageous, British Tommies that in co-operation with the others are helping with our Allies to maintain our very existence at this moment.

If there was a proposal carried at a succeeding Conference to include local land defence, and to put the power of framing a concrete army for Empire purposes under an Empire Parliament, I personally would strongly oppose it in our country, and would do everything in my power to prevent it coming into operation, because I believe it would be a very undesirable thing to do. It would be one of the first things that would impress the people in these countries with the feeling to which General Smuts gave expression. While all belong to one common Empire, there are different races; there are different ideals permeating the minds of the people in the different portions of the Empire. If the feeling were implanted in the minds of even the coloured races in some of the oversea countries that the power of dealing with the army was going to be transferred in some way to a central authority, however necessary it may be to have a central authority created, then, in my opinion, we would commence to have a backward wave set in against any proposal in the direction of doing what is otherwise essential for the future preservation and for the future solidarity of the Empire as a whole. I want to make it quite clear that whatever may require to be done as soon as possible after the cessation of hostilities, to which Sir Robert Borden in his speech has referred, there ought to be a clear understanding expressed by this Conference, so that we may have an opportunity in our own country if the need arises of discussing it before another Conference takes place. There should be an indication given by this Conference as to what it is intended that we should come to a round table to consider, at a future Conference, and such could be handed over to any organization, be it a loose or even a constituted one. In my opinion Mr. Long, unless there is some common understanding about that, we are going back to our respective countries with only the general idea which exists, as Mr. Massey has pointed out, in speeches, pamphlets and books where there are all sorts of ideas which have been given expression to by different people regarding this matter. We shall be going back practically in a state of generalisation without being able to give the least indication to anyone of what it is the next Conference is

to be called upon to consider in connection with this all-important matter. But for the exigencies of the situation at the present moment, due to this great War, this horrible War, but for the impossibility of members of the British Cabinet, particularly, and of the Oversea Dominions representatives too, because they have to get back to their countries concentrating their attention on any other subject but the War; but for the needs of all the different nations and the necessity for their devoting their attention wholly and solely to war matters and to winning the War, this matter should be considered now. There is nothing standing out of greater importance at the present moment than the consideration of such proposals as Sir Robert Borden has indicated for the purpose of maturing them to some extent, because when they are matured to the extent of being carried at a Conference or Conferences, or at a Convention or Conventions, they have then to go back, both to the British Parliament and to the respective Oversea Parliaments to be considered and ratified in each of these places; in fact, in all probability they will have to be sent to the people before the Parliaments can finally decide what is to be done with regard to any material alteration in the future constitutional organization of the Empire. In my opinion, a conference in dealing with the readjustment of the Empire, should deal in the main with two great cardinal matters, namely, Foreign Policy and Naval Defence and how to provide for the finance without giving the power of taxation to any authority excepting the local parliament in each part of the Empire.

I make these observations because I regard them as of sufficient importance for me to express my opinion upon them now. I want to direct the attention of this Conference to a position that may and must arise. If you expect to have any success from any decisions which may be arrived at at any future Conference, you must have unanimity, you must have at least the good feeling and the general support of all the important countries that will have representation at a future Conference and to get that each important political party should be represented. Now I want to call attention to this fact because it is probably more a matter for you, Sir, to consider in the Recess after this Conference rises, and it certainly will require to be known in all our countries: How are they going to vote when they come to this Conference—that is, men who are not members of the Government? It is right under existing conditions that countries should vote individually; that is, I think, the right course to pursue. But that will not exist when you have, as I think ought to be the case, men of the respective political parties coming from such enormous distances to go into the merits of the question who will not have a vote. That is not going to suit the representatives of the different parties here. For instance, if you had the Leader of the Opposition from Canada or Australia or any of the other Oversea Dominions, what are they going to do? Are they to remain at the Conference table without a vote? If you tell them they are to remain at the Conference table without a vote, they will not come. If you have the Leaders of the Opposition—and they ought to be here—from all portions of the Empire, including Great Britain, coming to a Conference for the purpose of considering matters of the most vital character to the people whom they represent and are expected to represent, then you are going to raise the question whether they are to be practically rendered dummies, except in words, from recording their opinions by voting upon matters material to the future of the Empire as a whole, and to their respective parts of the Empire, owing to the fact that existing conditions prevent them from having a vote. You might under those circumstances have carried at this Conference by a bare majority a Resolution which could never be put into effect in the countries concerned because if a strong and powerful minority determined not to give effect to what a small or bare majority had decided here, it would be absurd to suppose it would be agreed to in their own countries unless there was to a very large extent common assent. I want to endorse what Sir Robert Borden and Mr. Massey said on that

point—I do not know whether General Smuts referred to it, for the moment, but I think he did not nor did Sir Edward Morris. If there is going to be what we all want, results achieved and good work produced from the next Conference, to which this Resolution is referred, then I personally am of opinion that the Leaders of the respective parties, unless they wish not to have the opportunity, should be here as well as the members of the Governments of the different countries. I think unless something of that kind was done it would be a herculean task for the Governments of the respective countries to expect to have cordiality or approbation or to remove friction.

Let me at once say that I am a strong advocate of an Imperial Parliament. I have studied the matter from every aspect, and I have considered it for very nearly thirty years, and I believe that if you want to prevent a weakening of the Empire in the years to come, and to have that growth of population to which Sir Robert Borden in his opening remarks rightly referred—if you want to have the growing populations in the oversea countries content—you must give them some voice in these matters with which alone an Imperial Parliament should have the right to deal. Those matters are—foreign policy, the right to have a say as to whether the people are to be plunged into war; the right to have a say in the terms of peace, and the right to have a say in what cannot be taken away from the Empire as a whole so long as it remains an Empire—the naval power necessary to meet the requirements of an Empire that is dependent entirely upon sea power for its existence. The details of the cost of maintaining a Foreign Office, or the attendant cost for upholding either of those two matters, would in the ordinary course of things require to come in. Still, I cannot for the life of me see (and I have considered it from every standpoint) how you are going to give any authority to a representative upon a Council, or to a member of a War Cabinet, to bind the millions of people in the oversea countries and in India (which I am very proud indeed to see included in this Resolution). I do not believe you will have a feeling of contentment, of rest, for many years in any of the Oversea Dominions or in the great Indian Empire, until you have some properly constituted Imperial Parliament with well-defined powers of dealing with those Empire matters to which I have just referred, the Imperial Empire matters, if one may use the term. There can be no question whatever of any interference with the power of each part of the Dominions—and of India, I hope, in the years to come—of having in their local parliaments the right to do whatever they think necessary for the benefit of their own people. As a matter of fact, Sir Robert Borden gave utterance to an expression with which I fully concur (I cannot repeat it word for word but it was to this effect), that he believed that as the development of the oversea countries takes place there should be a growing equality of nationhood—that is what I understood him to say.

Sir Robert Borden: Equality of nationhood.

Sir Joseph Ward: A growing equality of nations applicable equally to the Dominions as well as to the Homeland. I endorse that, and I agree with that sentiment absolutely. In practice, how are you going to put it into operation? Mr. Long, let me for one brief moment say what passes through my mind as I see the position and as I think it will develop in this country. I am not interfering with any of the domestic concerns of the Old Land when I allude to it. I have not attempted at any time to interfere with the domestic affairs of the Old Land on my visits to England while holding an official position, and I do not propose to do so now. But as part and parcel of the Empire we have to take into consideration what is going on here in so far as it is calculated to affect the whole Empire. Now what is Great Britain on the verge of doing? We see it in the public Press, we hear it from public men, and we hear it from the authority of the British Government. The British Government have agreed to materially change the franchise of the people in the United Kingdom. Among other changes women are to have a conditional vote. Does

not that, at least indirectly, affect us people in the Oversea Dominions? Do we not realize that in the alterations which are being made here they are widening and broadening the whole basis upon which the Mother of Parliaments, in the House of Commons at present, rests, and that you are going to give wider power to men and to women in this country than they have ever had before? With the widening of that power to men and to women in this country, would it not be suicidal for any of us to believe that they are not going to throw still greater work upon the House of Commons than they have ever thrown upon it before? Our experience in the oversea countries, where we have evolved from a limited franchise to universal suffrage, has shown us all (and in practice it will be the same here) that the widening of the franchise, especially with the providing of a vote for women (even although it may be limited in this country), is going to throw upon the parliamentary machinery that has to carry out the work for the United Kingdom and Ireland, and the whole of the Empire work connected with the oversea countries as it stands at present, a greater burden of work than it can stand. If you throw an additional burden of work on the existing machinery here, then I want to know what prospective chances your own kith and kin in the oversea countries have of having purely Empire matters expeditiously dealt with. It is notorious that the machinery of the House of Commons has been clogged and has been inadequate for years. We all recognize that an immense amount of good has been done and an immense amount of assistance has been given to the oversea countries by the respective Governments of this country. We all recognize that at least for a good many years all the oversea countries have had the kindly ear of members of the House of Commons and of members of the House of Lords. But however well the work may have been done in the past, and however good the intentions may have been of those responsible in the past, in surveying the situation as it now exists in which we are deeply concerned and in which we are going to be more vitally concerned after this War is over as to what you are going to do for the government of the Empire, we cannot shut our eyes to the changes that are taking place in this Old World. I want to say—though I may hold this opinion alone, but I do hold it and I am going to express it—that unless the people in the Old Country, with whose future action we are vitally concerned, recognize that their machinery here is not competent to carry on the work of the Empire and of the Homeland at the same time, I do not believe that we will ever have satisfactory Government for dealing with these important Imperial Empire matters which is necessary for the future holding together of the oversea countries with the Homeland. I do not believe you will ever have it until you make up your mind that you are going to have an Empire Federal Parliament. In all probability the House of Lords and the House of Commons will remain for doing the work of your own people here, but there will have to be some alteration by which every section of people in the British Isles, including the English, the Irish, the Scotch and the Welsh, have got their separate Parliaments for their own local internal affairs, just as we have our separate Parliaments for our local and internal affairs, kept clear of these absolutely necessitous requirements of attending to the all-important Imperial Empire matters which mean the safety of the Empire as a whole and the keeping of it together. Each portion of the British Isles and those of the Oversea Dominions having representation in an Empire Parliament to deal with those matters common to and vital to the Empire as a whole. You are not going to get the work done with the clogged machinery under existing conditions. We are not getting it now, and you are not going to get it in the future until the time arrives when the United Kingdom of its own accord without any interference from the Oversea Dominions settles its own form of constitution within the British Isles. Until Britain has what I call Reconstruction at home—and the oversea countries look upon it as "home"—until the responsible people governing this country and the rank and file of the men in the Parliament of this country, and the rank and file of the people behind and outside the Parliament of this country, recognize that the present machinery which was so valuable in giving us our Constitutions and helping us to effect

the colonization which has been so valuable to the Homeland itself is changed because of the changing conditions which have been going on in the last fifteen or twenty years, unless they realize the changes are of such a nature that they cannot hope to give satisfaction either to their own people here or to our people abroad, until in some form or another they make up their mind that they will reconstruct at home, then and then only will there be any base upon which you will be able to raise a structure for the Empire that is going to keep the Empire for the English, the Irish, the Scotch and the Welsh, the South Africans, the Indians, and for all the people of the other dependencies of the Empire. I hold these views and I feel that the freedom which has characterized all the meetings of this Conference warrants me in saying what I have on this important matter. I do not think you will be able to deal with the British Navy, or rather with the Empire Navy, satisfactorily until you have some Empire Federal authority, with proper representation from each national portion of the British Isles and of all the Oversea Dominions upon it, where the people in the respective parts of the Empire can have the continuous right, in peace time and in war time, of having a true representation of the people so as to ensure them a voice and say in those Empire concerns vital for the protection of all parts of the Empire.

I do not want to further elaborate the matter of the Navy. I feel limited in many observations I might otherwise make because of one thing which I think is a governing factor and has to be recognized by me, and that is, that, until we know what the British Admiralty consider desirable in connection with the Navy, it is premature to discuss in what way it should be administered under any alteration which may be found necessary after the War to make. Therefore I propose to say no more upon that. I have made these remarks on the question of an Empire Parliament because I am of opinion that they do not present insuperable difficulties. I hold the opinion that events which will come along with great rapidity, if they do not force the hands of us who are now ruling in our respective countries, will, because of the necessities of both the Motherland and the outlying portions of the Empire, bring it up for consideration at an earlier period than perhaps any of us imagine at the present moment.

Having expressed my opinion upon that point, I want to say that I fully recognize that there is a gap, and a pretty wide gap, which must exist until something has been decided in the future as to what the system of the Empire Government or Empire Parliament, or whatever it is, is to be. I know it cannot be hurried or forced before it is ripe for settlement. In the interval the gap has, in my opinion, to be bridged, and I believe it can and should only be bridged temporarily. There are evolutions which are going on in the great Indian Empire which we all recognize, and the time has not yet arrived when they know what the length of the gap between the present and the future system will be as far as they are concerned. There are none of us here who know what the length of the gap is to be. The present unsatisfactory system is really no system except one of powerful goodwill which has done such an immense amount to help the Empire as a whole in all its undertakings either in war or otherwise. In the interval there has to be something done to fill that gap which exists, and I am exceedingly sorry that that apparently is not going to be settled at this Conference. I believe, with Sir Robert Borden and Mr. Massey and with other speakers, that the change brought about by the goodwill of the Prime Minister of this country and his colleagues of inviting the representatives of the Oversea Dominions to the War Cabinet is a tremendous step forward. It appeals to the imagination of the people all over the Empire. It is not an imaginary appeal in the ordinary sense of the term that is being made to them; it is a practical appeal from the standpoint of consultation with the British controllers of the destinies of the Empire, which after all, is the British Government. It gives us the opportunity of consultation, and that has appealed to the hearts of the people all over the British Empire, and in that respect it has in my opinion, been a tremendous step forward. As I understood from Mr. Long that the Prime Minister is going to make some statement on the matter, I

will only say that in my opinion, in some suitable way, there ought to be representation of the oversea countries in the British Cabinet of this country. How that representation is to be created it is not for me to say, but I want to express the opinion that, if it is to be what is called itinerary representation by any man of responsibility from any of the oversea countries, such a man could not be expected to come to this country for three, six or twelve months and then to go back again and to come over here again for three, or six or twelve months, however well intentioned and full of goodwill he might be. In my opinion you will not get any man of any strong standing from any of the respective countries to do that. The work would require the very best man you can get; but if you are going to fill the position in a sort of itinerary way, and make it a position which is going to be regarded from the point of view of the Empire as a whole as one, putting tremendous responsibilities upon an individual, whoever he may be, then I do not think there are very many people from any parts of the Empire, except for the purpose of appealing to their own individual ambition (which is a factor, of course), who would accept the right to occupy a position of that kind, and I do not think it would be fair to ask them to fill such an itinerary position. I have no doubt, however, that whatever personal sacrifice or inconvenience any one may be put to will be readily done. I am looking forward with considerable interest to what may be suggested about this most important matter.

CHAIRMAN: I do not want to raise any false hopes. I only referred to the statement made by the Prime Minister that the fuller Resolutions were going to be discussed on Thursday.

Sir JOSEPH WARD: Do you mean here?

CHAIRMAN: No, in the War Cabinet.

Sir JOSEPH WARD: I understand. I do not for one moment desire to put you in the position of having committed yourself to anything, I do not wish that to be understood at all; I only meant that I was looking forward with interest to hear whatever statement might be made on this important matter after it has been considered in another place. At all events, this Resolution of Sir Robert Borden's receives my personal very hearty support, because, at least, if the Resolution here put on record by the present members of the Conference conveys anything, it conveys a distinct suggestion that between now and the next Conference after the War there should be some effort made to formulate something that may be brought up at that Conference with a view to its being dealt with, and in that respect I think this Resolution is timely and will do a considerable amount of good.

As we are passing through quite extraordinary times, I want to make sure that there is no misunderstanding, so far as I am concerned as a representative, upon that point of attachment to the Monarch of this country in the high and responsible position he holds. What appeals to me is the fact that some of the Continental thrones are tottering from a position of autocracy into one of the people ruling. What strikes me about it is that the reflex that we get upon our own Homeland with the King as the head of the monarchy, is entirely in favour of the continuance of a monarchy in this country. It does bring into striking relief—and in the far-flung young nations attached to the Empire as a whole it is as strongly felt as in the heart of the Empire, if not more so—the fact that the constitution of this country relieves the Monarch from being put into the position of an autocrat similar to those monarchical autocrats who have plunged the world into the present horrible War. One thing is certain, our beloved King was in no way responsible for the starting of the great war now raging. It make us recognize more and more that it is the Monarch's constitutional advisers here who alone are responsible for the policy as between them and the people. If the conditions were similar to the conditions that exist in Russia and in Germany, and in some other countries which one need not name, it might have created in the minds of the peoples both here and in the oversea countries particularly, who have never seen and may never see this country, a very different feeling from their deep and abiding

attachment to the monarchical system which rules in this country. Within my recollection I have never seen any attempt in the direction of autocracy exhibited by the three Monarchs in whose reigns I have lived and served under as a Minister of the Crown in a distant part of the Empire, which would engender any spirit of ill-will towards the system which they have so successfully and so nobly filled during the time they have been at the head of the monarchy. As one of the representatives from one of the young oversea countries, I want to add my words of testimony to those expressed by Sir Robert Borden, Mr. Massey, General Smuts, Sir Edward Morris, and the representative of India, of endorsing that fine feeling, particularly at this juncture, that exists towards His Majesty the King and his most Gracious Consort the Queen. So that while there are some people who may be imbued with notions of prospective changes in connection with our system here, all I can say is that my belief is that the oversea countries would stand shoulder to shoulder with the Motherland for the preservation of the monarchical system under which they have developed so wonderfully. Britain is the only successful colonizing country of any importance in the world, and under that system to which I have just referred they have been unfettered by the Monarch and allowed to do practically, within the limits of reason, whatever they liked in the matter of legislation, and, therefore, they would not wish to see any change in any direction whatever.

Let me just say, in conclusion, that Sir Robert Borden in his speech upon this matter showed very conclusively that something requires to be done in the future, and the future alone can really provide what is going to be done in this matter. I hazard the opinion, as one of the public men in a far-off country, that this matter of readjustment of the constitution stands out, to my mind, as of such stupendous importance that if it is necessary to have one Conference or two Conferences, or one Convention or two Conventions, or more, as this Resolution says "as soon as possible after the cessation of hostilities" it certainly ought to be taken in hand. I do believe with Sir Robert Borden—and I want to emphasize this—that the Conference to consider it ought to be a thoroughly representative gathering of public men from the Oversea Dominions holding responsible positions. May I say that we have never yet had any test by our respective Parliaments on any important matter from the Imperial Conference regarding reconstruction of the Empire; but such a test we shall have when one Resolution is carried into effect that proposes to make some fundamental change in the Constitutional Government of the Empire. I say that when we do get a Resolution passed that requires to be carried by our Parliaments and endorsed by our people, it is essential to have the goodwill of every section of powerful parties as such a Conference or Convention as is going to deal with an alteration which for generations to come will in all probability be the law, although, unlike the laws of the Medes and Persians, it will be alterable and flexible at the will of the people who make it. All the same, it will affect the future destinies of the countries to such an extent that, however inconvenient, no inconvenience on the part either of the Oversea Dominions representatives or of the Home representatives should be allowed to stand in the way of representatives of the leading political parties coming together and setting to work to consider seriously the question of the Government, not upon matters affecting the internal affairs of the Empire, but on those points which are common to all. I agree with Mr. Massey, that when we get to the point of having to consider how the financial part can be arranged for dealing with these overriding Empire matters, that it can be satisfactorily done beyond all doubt without interfering with the local financial requirements of the respective Governments; and there is no Government, in my opinion, will transfer its power of taxation to any Imperial Parliament or to any Empire Government. For the Empire purposes to which I have alluded for the protection of the Empire, whatever they are, when each Government is asked to provide the means, the Governments of the respective countries must have the authority of their own Parliaments, with the consent of their own people, but they will never allow

any distant central organization to have the power of double taxation, however limited the power of the central authority in that respect may be, or for any purpose of taking it out of the hands of the respective Governments for carrying on any of these Empire matters.

This is a matter which one might, upon various other aspects, discuss at considerable further length, but I have taken the opportunity of stating my views on one or two points, as I feel, from the importance of the subject, that I should have been wanting in the performance of my duty to my country, and indeed to the Empire, had I not done so.

Sir ROBERT BORDEN: I should like, if I may, to correct any misapprehension which may have arisen on the observations I made in opening. I have not had any communication with Mr. Lloyd George respecting the matter, but I have gathered the impression—I do not know whether it was from an authoritative source or not—that he was prepared to carry out, or to recommend at least, an arrangement by which Overseas Ministers who were able to be present here in London should be summoned to meetings of the Imperial War Cabinet during the progress of the War.

I entirely agree that the step recently taken is a very important advance, because there is but one Crown, but there are many nations within the Empire, and the Crown in its relation to any Dominion acts upon the advice of the duly constituted Government or Cabinet of that Dominion. The Crown at present acts upon the advice of a Cabinet in all Imperial matters, which includes not only Ministers responsible to the British Parliament but also those responsible to the Parliaments and Governments of the respective Dominions so far as they are represented here. The conventions of the Constitution are really its foundation; where there are no written Constitutions, almost everything depends upon convention. The great influence of conventions, even upon a written Constitution, may be observed from what has taken place in the United States, where the original terms of their Constitution have been modified by convention in the most remarkable manner and in more than one respect. So I attach importance to the beginning of what may become an established convention in the government of this Empire. I also entirely agree with what has been said as to the importance of the principle we are affirming in this Resolution. I do regard it as a very important advance. The matters to which Sir Joseph Ward has directed our attention are of great importance, but many of them seem to me to be matters rather for the consideration of the Conference to be called than matters which we can properly or effectively consider to-day. I agree thoroughly also that the British democracy to-day is as advanced and progressive and perfect a democracy as can be found anywhere in the world. By "British democracy" I mean the system of government which prevails in the United Kingdom and in the Self-governing Dominions. In that system the King is the head of no party, but he is the head of the united democracies of the Empire.

I entirely agree with General Smuts that, according to the form of the Constitution at present, the conditions are as he suggests. It is to be observed, however, that constitutional writers draw a sharp distinction between legal power and constitutional right. The British Parliament has technically the legal power to repeal the British North America Act—taking our Dominion as an illustration. But there is no constitutional right to do so without our assent, and therefore, while there is the theory of predominance, there is not the constitutional right of predominance in practice even at present. Questions, however, do arise with regard to it from time to time. We have had, even since the War began, a question as to the exercise of the prerogative, and a question as to the advice upon which the prerogative under certain conditions shall be exercised—upon the advice of the Government of the United Kingdom, or upon the advice of the Government of Canada? Doubtless, under present conditions, questions of that kind are occasionally arising, but upon

the basis which is established by this Resolution they are less likely to arise in the future.

I am very glad that the Resolution has commended itself to the members of the Conference, and I earnestly hope that the result of the Conference which is to be summoned will be all that we can hope.

CHAIRMAN: I do not think it is necessary for me to say more than a word or two to the Conference. Of course, it must be obvious from the terms of the Resolution, as well as from the remarks that have been addressed to us by various members, that had this Conference been assembled under ordinary circumstances, a Resolution of this importance would have been discussed with the Prime Minister of the Government here at home presiding, and, no doubt, with the presence also of some high officers of State, such as the Lord Chancellor, and others; but the fact that we are at war, and that, therefore, the Ministers here are engaged upon other work connected with the War, which makes their presence impossible, has to some extent (and I think this has been apparent from the speeches which have been made) weakened our discussion. But, personally, I rejoice very much that this Resolution has been placed on the paper, and I think the debate which has taken place has been of immense interest, and of very great value to us, whether we come from the Self-governing Dominions, or from the Empire of India, or from the United Kingdom. I think it will help us very much.

I should like just to say that I am sure I speak for His Majesty's Government in this one respect, when I express our cordial appreciation of the references which have been made not only to our Sovereign King George V and His gracious Consort, who has been well described as a British princess, but also to King Edward VII and Queen Victoria, a long succession of monarchs who, by their wisdom and by their action as the reigning sovereigns of this Empire, have done so much to deserve those tributes which we have heard to-day; which, I am convinced, come, not merely superficially, but from the hearts not only of those who represent the various parts of the Empire, but from the various parts of the Empire themselves. I have always felt, myself, in regard to this very difficult question of Imperial Federation (and I apologize to the Conference for giving them what is, after all only my own view), that really the working plan of the future will have to come from the Dominions themselves. Constitution making is rather a popular occupation, and just as during this War, we find that every omnibus or railway carriage contains commanders-in-chief of both the Navy and the Army, who judging by their conversation, are prepared at any moment to take supreme command and do things better than the commanders do them, so we find constitution-makers are very plentiful. There are all sorts of schemes in the air. It has always seemed to me to be a very dangerous thing to attempt to make a Constitution which we would seek to impose upon the various parts of our Empire which have strong views of their own, and who must of necessity know their own local difficulties and conditions better than they can be appreciated here. That we must arrive at some closer system of government, some wider share not only in government but in the responsibility of government, is, I think, apparent to all of us, but we can only do it, I believe, by very cautious and gradual steps; and I am one of those who believe that we shall find the solution rather in evolution than in any tremendous root and branch change. We must all feel that the British Empire has stood this supreme test with marvellous success, and however anxious we may all be for reform, I am convinced, speaking, if I may say so with great respect, merely for myself, that wise reform will be found in gradual and prudent procedure rather in anything very sudden and drastic. That is why I welcome, as I cordially do, this Resolution, because I am bound to say I believe this War would have been fought, if not in vain, at all events with very unsatisfactory results when the victory is won, if it had not led the British Empire

to realize that she must strengthen herself and must consolidate if she is to meet the future and be the power for peace and progress in the future which all those who have died in this War gave their lives in order that she might be.

It is for these reasons that I venture very briefly to say these two or three words. I regret very much the absence of the Prime Minister and his colleagues. I hope I have not misled the Conference as to any announcement he is going to make, because I have no right to do anything of the kind; I only intended to indicate that he was going to meet us on Thursday, when no doubt, we shall hear his views on various questions.

Now, may I put the Resolution to the Conference as amended?

The Resolution, as read out by Sir R. Borden with the amendments relating to India, was put to the Conference by the Chairman, and agreed to in the following form:—

The Imperial War Conference are of opinion that the readjustment of the constitutional relations of the component parts of the Empire is too important and intricate a subject to be dealt with during the War, and that it should form the subject of a special Imperial Conference to be summoned as soon as possible after the cessation of hostilities.

They deem it their duty, however, to place on record their view that any such readjustment, while thoroughly preserving all existing powers of self-government and complete control of domestic affairs, should be based upon a full recognition of the Dominions as autonomous nations of an Imperial Commonwealth, and of India as an important portion of the same, should recognize the right of the Dominions and India to an adequate voice in foreign policy and in foreign relations, and should provide effective arrangements for continuous consultation in all important matters of common Imperial concern, and for such necessary concerted action, founded on consultation, as the several Governments may determine.

Naturalization.

Sir GEORGE PERLEY: Looking over the papers in connection with the subject of "Naturalization" I would venture to express the opinion that there is nothing in the suggestions to which we could take exception. At the same time I think it is a matter that ought to go to the Departments of Justice of the various Dominions unless somebody is here willing to take it up and go into it carefully. In a general way the proposals put forward seem to me to be very reasonable and necessary.

CHAIRMAN: I was asked to move two resolutions on the subject *pro formâ*. I need hardly say it is not my subject; I am not responsible for it, but the Home Secretary, who is responsible, is unfortunately ill and cannot attend. So all we could have would be the advantage of the presence of the permanent officials.

General SMUTS: The resolutions seem only *pro formâ*.

CHAIRMAN: I am told that is all they are.

Mr. MASSEY: I would like to look at the papers connected with it before I say anything on the subject.

CHAIRMAN: Then we will put "Naturalization" first on the paper for our next meeting.

Mr. MASSEY: I do not think the matter is of very great importance.

Adjourned to Wednesday next at 11 o'clock.

TENTH DAY.

Wednesday, 18th April, 1917.

The Imperial War Conference met at the Colonial Office at 11 a.m.

PRESENT:

The Right Honourable Walter H. Long, M.P., Secretary of State for the Colonies (Chairman of the Conference).

Canada.

The Right Honourable Sir R. Borden, G.C.M.G., Prime Minister.
The Honourable Sir G. H. Perley, K.C.M.G., Minister of Overseas Military Forces.
The Honourable R. Rogers, Minister of Public Works.
The Honourable J. D. Hazen, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. Massey, Prime Minister.
The Right Honourable Sir Joseph Ward, Bart., K.C.M.C., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. Smuts, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. Morris, K.C.M.G., Prime Minister.

India.

The Right Honourable A. Chamberlain, M.P., Secretary of State for India.
Sir J. S. Meston, K.C.S.I., Lieutenant-Governor of the United Provinces.
Colonel His Highness The Maharaja of Bikaner, G.C.S.I., G.C.I.E., A.D.C.
Sir S. P. Sinha, Member Designate of the Executive Council of the Governor of Bengal.

Mr. H. C. M. Lambert, C.B., Secretary to the Conference.

Mr. E. J. Harding, Junior Assistant Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. Fiddes, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.
Mr. A. D. Steel-Maitland, M.P., Parliamentary Under Secretary of State for the Colonies.
The Right Honourable Sir Robert Chalmers, G.C.B., Permanent Secretary to the Treasury.
Sir Edward Troup, K.C.B., Permanent Under Secretary of State, Home Office.
Sir E. Nott-Bower, K.C.B., Chairman, Board of Inland Revenue.
Mr. John Pedder, C.B., Legal Adviser, Colonial Office.
Mr. J. S. Risley, C.B., Legal Adviser Colonial Office.
Mr. N. F. Warren Fisher, C.B., Deputy Chairman, Board of Inland Revenue.
Mr. J. Fischer Williams, Home Office.
Mr. H. W. Malkin, Assistant Legal Adviser, Foreign Office,
and
Private Secretaries.

Naturalization.

CHAIRMAN: On this question will you begin, Sir Robert Borden?

Sir ROBERT BORDEN: I would suggest, Mr. Chairman, that we might dispose of the question as to naturalization pretty briefly by referring the recommended proposals for the consideration of the respective Governments summoned to the Conference. It is impossible for this Conference to enter into all the details of the proposed legislation. A general Act, which was passed by the Parliament of the United Kingdom about three years ago, I think, was adopted in Canada after a great deal of conference and communication by cable. I do not know whether it has been adopted in any of the other Dominions or not; I think it has been adopted in Newfoundland.

Sir EDWARD MORRIS: Yes.

Sir ROBERT BORDEN: It is now suggested that the provisions of that legislation, having regard to the experience gained in the War, will require amendment and extension. We could not possibly come to an agreement on the subject at this Conference. The Minister of Justice in Canada has devoted a great deal of time to the consideration of Naturalization, and the Bill which was passed in our Parliament in the same terms as that passed in the Parliament of the United Kingdom was under his direction in conference with his colleagues. I suggest that probably we would meet the situation if a Resolution in this form were moved: "It is resolved that the proposals set forth in the Memoranda submitted by the Home Office be commended to the consideration of the respective Governments summoned to the Conference." The consideration of the matter could proceed between the Government of the United Kingdom and the Governments of India and the Dominions in the same manner as it took place upon the original Bill. I do not wish to move this Resolution unless it is considered sufficient by the representatives of the Home Office. It seems to me that it meets the situation as well as it can be met under present conditions.

CHAIRMAN: What do you say to that, Sir Edward?

Sir EDWARD TROUP: The proposal is to recommend to the Dominion Governments the proposals put forward in this Memorandum?

Sir ROBERT BORDEN: Yes.

Sir EDWARD TROUP: Both the legislative and the administrative proposals?

Sir ROBERT BORDEN: Yes—"that the proposals set forth in the Memoranda submitted by the Home Office be commended to the consideration of the respective Governments summoned to the Conference."

Sir EDWARD TROUP: Clearly in any case we should wish to consult with the Dominion Governments on the details of the proposals. Our object now is to get a general assent to the principle from the Conference.

Mr. MASSEY: Do you mean to the Bill?

Sir EDWARD TROUP: I am speaking of the Bill, but the same would apply also to the administrative proposals.

Mr. MASSEY: This is a somewhat imporant subject at this juncture, Mr. Long, and it must come up to be considered and dealt with either now, before the end of the War, or just immediately after it. If possible I think it ought to be dealt with before the end of the War. I am afraid that in our Naturalization laws we have been somewhat lax, and I am speaking not so much of the United Kingdom as of the Dominions. We have all had trouble and difficulties already and I think there should be such legislation passed by the Parliament of the United Kingdom and by the Legislatures of the Dominions as will if possible enable us to avoid similar trouble in the future.

SESSIONAL PAPER No. 42a

I have just been looking at the Bill and it seems to me that the important part of it is subsection (2) of clause 1, where it is provided that "A Secretary of State may also by order revoke a certificate of naturalization in any case in which he is satisfied after such inquiry as hereinafter mentioned that the person to whom the certificate was granted either—

"(a) Has shown himself by overt act or speech to be disloyal to His Majesty; or

"(b) Has within five years of the date of the grant to his certificate of naturalization been sentenced to not less than twelve months' imprisonment or to a term of penal servitude; or

"(c) Was not at the date of the grant of his certificate of naturalization of good character; or,

"(d) Has since the date of the grant of his certificate of naturalization been for a period of not less than seven years ordinarily resident out of His Majesty's dominions otherwise than as a representative of a British subject, firm, or company carrying on business, or an institution established in His Majesty's Dominions, or in the service of the Crown, and has not maintained substantial connection with His Majesty's dominions;

"and that (in any case) the continuance of his certificate is not conducive to the public good."

That is a pretty drastic proposal, but I am not prepared to say it goes too far, and as a matter of fact, I do not think it does. I think when this present War comes to an end we have got to be particularly careful about the naturalization of enemy subjects, and when the matter comes before our Parliament, as it must, because our Naturalization Laws are not by any means perfect, and we know it now, speaking for myself, I shall do my best to prevent any of the present enemy subjects being naturalized without their showing particularly good reason therefor. As a matter of fact, speaking generally, I do not think we should naturalize the present enemy subjects for a considerable period, say, five or seven years, after the War comes to an end. In saying that I am looking forward to the attempts which will be made, as we all know perfectly well, by enemy subjects to get back into the commercial and industrial position which they occupied prior to the War. I am very strongly of opinion that those attempts should be resisted to the utmost of our power, for a very long time to come at any rate.

Sir Joseph Ward: I agree with Mr. Massey's remarks. Personally I am in full accord with this proposal to give power of cancellation to the Secretary of State. I think it is worthy of the most serious consideration of all the Oversea Dominions that the power of cancellation of naturalization of any one should remain in the hands of the Executive. It is to my mind desirable that there should be reconsideration with regard to the period of time entitling to naturalization which, in previous periods in our country, and I think in some of the others, was altogether too short. I am inclined to think that it would be a good thing if a definite period were fixed of seven years at least. Under the old system any one coming along and remaining for two years only in some countries—I am not at all sure that in one country it was not less—could have the right to receive the benefit of the laws of a British country. I think that should be stopped at once and for all, and that the power should exist in the legislation of the British and all the other Governments, if it is not here now, to cancel the certificate of any person at any time who has been naturalized in any country if sufficient reason is shown that that should be done.

Our experience in this War has shown us that it is impossible to allow liberties to be taken by enemy subjects, many of whom upon the outbreak of War directly associated themselves with their country of origin; and, in any case it has

been shown clearly that for quite a long period after the War they were in association privately, numbers of them, with people in outside countries with the object of interfering with the country in which they were making their living and which was protecting them under the law and in which they were receiving the benefit of naturalization. In all those cases where that can be ascertained the naturalization certificate should be cancelled, in my opinion; at all events, I for one am prepared to go to the very greatest length that it is possible to go to prevent the possibility arising in the future of enemy subjects within the British Empire getting into a position that may be disastrous to us should there be any difficulties in the way of war with other countries or with the countries to which they belong or from which they have come. Each of the countries will carry out the legislation dealing with naturalization in such a way as they think proper; but in view of the facilities for rapid travel and the ever increasing number of steamers which give rapid transit across the ocean to different parts, it does seem to me that if the Naturalization Laws are to be thoroughly effective there must be some method in operation to deal with people naturalized in one portion of the Dominions passing to another; and a review should take place when they pass from the one Dominion to reside in another as to the person and the circumstances under which he obtained his original naturalization. This Empire is too big and it is too close to enemy countries at the present moment not to realize that whatever may have appeared to be reasonable and fair in the past would not, in the light of our recent experiences, be reasonable and fair to the people in our countries at the present time. As far as I am concerned, I hope the British Government will get legislation of a drastic nature on the statute book, and that in turn the Oversea Dominions will in their way follow in the direction of ensuring their preservation from any enemy efforts by or through naturalized subjects to weaken us in the future.

Mr. MASSEY: May I ask the representative of the Home Office a question? It was suggested some time prior to the outbreak of war that we should have legislation not only in the United Kingdom but in the different parts of the Empire to the effect that when a foreigner became naturalized in any of the Dominions, or in any part of the Empire, the certificate or letters of naturalization entitled him to citizenship in any other part of the Empire. I do not know whether that was ever given effect to.

Sir EDWARD TROUP: Yes, that was given effect to under the Act of 1914, which provided a general law under which five years would be required before there could be any naturalization. It provided that where the Act was adopted by a Dominion then the certificate granted by the Dominion should have effect throughout the whole Empire.

Mr. MASSEY: That is the point really upon which I want information.

Sir EDWARD TROUP: As a matter of fact the Act was passed just after the beginning of the War and it had received the absolute assent of all the Dominions, but passing immediately after the outbreak of war it hardly received the large amount of attention which it deserved.

Mr. MASSEY: Is that the Act?

Sir EDWARD TROUP: That is the Act which has been adopted in Canada.

Mr. ROGERS: Have you adopted it in New Zealand?

Mr. MASSEY: No, we have not.

Mr. ROGERS: Then you are lucky.

Sir EDWARD TROUP: The adoption of that Act with the further amendment suggested would, I think, effect what Sir Joseph Ward wants.

Sir ROBERT BORDEN: I am not criticising the proposals. I do suggest that the subject is important and, in some respects, complex. The Act was adopted by our

Parliament after very considerable discussion and after a very long conference with the Imperial Authorities. It is now proposed that certain administrative principles shall be adopted and that certain amendments shall be made in that Act. It is utterly impossible for me, without the assistance of the Minister of Justice and without the assistance of the technical officers of his Department, to say whether we are prepared to accept these proposed amendments precisely in the form in which they are submitted to the Conference. Therefore, as it will be necessary in the end to refer this matter to the Oversea Dominions, it seemed to me that the situation would be adequately met if we commend these proposals to the consideration of our respective Governments. As far as I am concerned I have been unable to give the time and attention to these proposals which would enable me to say that the Canadian Government and the Canadian Parliament would accept them precisely in the form in which they are submitted. It is quite possible that we shall be prepared to accept them, but I am not able to say that without the assistance to which I have already alluded. The Home Office have given long and careful study to the question. We have not had that advantage and we have not the persons here whom we should require to assist us for that purpose. I should not be inclined therefore, to assent to any Resolution which adopted those proposals in the absence of the opportunity, to myself at least, of giving them the consideration which they must have.

Sir Edward Morris: I must say I am very strongly in favour of the proposal of the Prime Minister of Canada on this point. There is a great deal in what Sir Joseph Ward has said, but we must remember that this is not an Act against the countries that are at war with us now; this is an Act against the United States and against all our other Allies, and we must be very careful.

Sir Joseph Ward: It only relates to alien subjects.

Sir Edward Morris: Yes, but alien subjects are people who can come from the United States to Canada and from the United States to your country. This Act is going to deal with every country in the world and with every part of the Empire. It is important to remember, for instance, that by clause 2 (*b*) of the Bill here a man may lose his citizenship in Canada if he commits an offence which subjects him to imprisonment for twelve months although he has been a naturalized subject for five years. All his neighbours round about are committing the same offences although they are not naturalized subjects, and that might have a very bad effect and create a very bad feeling amongst people in the country who are desirous of settling down and becoming good citizens. I think under all the circumstances, having regard to the technicalities of this subject, it would be well to have the matter first considered from the standpoint of the various Dominions, and for them to ascertain first whether there are any difficulties. If there are any difficulties they should ascertain them, and after communication with the Home Office or the Colonial Office we probably should be able to have a Bill drafted which would be of such a general character as to meet with the wishes of all.

Chairman: Does not the Resolution suggested by the Prime Minister of Canada really meet the case? It affirms the principle. I do not know whether the Prime Minister of Canada would be willing to add some words affirming the general proposition contained in the Home Office Resolution.

General Smuts: You might add, "while generally in agreement with the proposals of the Home Office."

Chairman: Something of that kind. The words of the draft Resolution prepared by the Home Office are: "It is resolved that it is desirable to take further power to revoke certificates of naturalization on grounds of disloyalty or other misconduct or severance of connection with the Empire." We want some words of that kind to show that we want to strengthen our powers.

Sir ROBERT BORDEN: Mr. Chamberlain has suggested an addition to the clause which I would be perfectly willing to accept, and which, indeed, expresses precisely my own idea, "and that the Conference recognizes the desirability and importance of securing uniformity of policy and action throughout the Empire with regard to naturalization."

Mr. MASSEY: I should like to say a word on that, and especially with reference to the point raised by Sir Edward Morris. With a very great deal of what Sir Edward said I thoroughly agree, but in order that no wrong impression may be created I would just like to say that nothing we are doing at the present moment is directed against either the United States or any of our Allies or any neutral country. It is not; nothing is further from my thoughts; but I cannot help thinking of the position which we have got into already with regard to the provision I mentioned when I was speaking a few minutes ago, that is, that if the law which is in operation in the United Kingdom is adopted by the Dominions, then it follows that the issue of letters of naturalization by any one of the Dominions to a citizen of any foreign country entitles that man to a citizenship in every other part of the British Empire. I am now inclined to think that we have got to be particularly careful, as that is already the law, not of the whole of the Empire, but of the United Kingdom and of the more important of its Dominions. That is the position to-day, and I can imagine cases where men may in future have the opportunity of becoming naturalized in some of the other Dominions, and yet New Zealand, for instance—and I am simply taking that as an illustration—might object to that man having the right of citizenship in our country. I think, in view of the position that at present exists, with regard to that particular provision we have to be exceedingly careful of what we are doing. As a matter of fact, I think we have to be far more careful with regard to the naturalization of the citizens of foreign countries, more especially enemy countries, after the War than ever we have been up to the present time.

Mr. CHAMBERLAIN: I think we are all agreed about that, if I may say so; but surely we should also be agreed upon this, that, if we can secure it, uniformity of legislation is very desirable, and is in itself an object. It would seem a fitting thing for this Conference to express its opinion that the uniformity of legislation is desirable while commending these proposals to the consideration of the Dominion Governments, and it would then set before us all, both the Government here and the Governments in the Dominions, that our object would be to arrive at some settlement which could be adopted throughout the Empire.

Sir JOSEPH WARD: I would just like to say what was the opinion of the men who were responsible for the proposals regarding the amended laws for naturalization at the previous Conferences which I attended and which have been alluded to. At that time the idea was to have that unity of action which Mr. Chamberlain has just referred to, and which personally, I think, it is highly desirable should be the aim of the different portions of the Empire now; but at the same time, it was believed by, I think, all the representatives who were here at the Imperial Conference, that the periods which varied in the different countries should be made uniform, and it was strongly held by different members that the certificates issued by any portion of the Empire should be admissible in other portions of the Empire.

I raised that point in the discussion to-day for the purpose of saying, as one who was at the previous Imperial Conferences, that as the outcome of the experience in this War I for one have altered my opinion about that. I think there should be the right remaining to each of the portions of the Empire to review a certificate issued in any other portion of the Empire.

As to this question of the United States, which is a very important one, raised by Sir Edward Morris, if we remember what the position was in pre-war days, as far as the United States of America were concerned, it was looked upon as the home of

the alien; he had an opportunity of getting into that country at one time in a very easy way. It is quite true that in recent years they have under administrative regulations been much more strict; but after this War is over it is quite conceivable that aliens even from enemy countries may get into the United States of America and become naturalized American citizens. They may pass over the border into Canada and after remaining in Canada for a time get a certificate of naturalization and then pass to some other portion of the Empire which might for local reasons regard them as undesirable people to be naturalized.

Sir ROBERT BORDEN: If you will permit me, I would like Sir Joseph Ward to realize, perhaps more clearly than he does, that for the past fifteen years at least the provisions, both legislative and administrative, in force in the United States with regard to the admission of aliens are stricter probably than in any other country. I took occasion to study them about ten years ago; I will not attempt to describe them, but they are exceedingly comprehensive and effective. I do not think there is the slightest danger, so far as they are concerned, of any relaxation of those provisions after the War. At the same time, of course, I realize that it is for every Dominion of the Empire to come to a conclusion as to the effect of this legislation. I do think, however, it is very important that there should be some Empire-wide system of naturalization, and that principle was affirmed at the previous Conference. The situation with regard to naturalization hitherto had been of the most extraordinary character. Naturalization granted in one Dominion took no effect anywhere else; naturalization in the United Kingdom took no effect in the Dominions; it was a system of disunion so far as naturalization was concerned.

Sir JOSEPH WARD: I am quite prepared to defer to Sir Robert Borden, with a greater knowledge of the position in the United States than I have, and I am very glad to hear that its administration has been so strict in the past fifteen years to which he refers, but I am not quite sure whether one point, to which we attach very great importance in New Zealand, does exist in the United States of America, as to the admission of people who may become naturalized even under the strict administration in that country. We expect before we allow an alien into our country that he should pass an educational test. My impression is that that test does not exist in the United States.

Sir ROBERT BORDEN: I do not speak positively, but my impression is to the contrary—that they have an educational test.

CHAIRMAN: But in any case surely the legislation which we are discussing has nothing to do with the right of a Dominion to limit immigration?

Sir JOSEPH WARD: No.

Mr. CHAMBERLAIN: You do not offer to receive every Canadian citizen or every English citizen, but you treat him, if he is a British citizen by English law, as a British citizen and not as an alien.

Sir JOSEPH WARD: I quite agree. If you include it under the head of Immigration it may not have a direct bearing on the question of Naturalization. I referred to it, however, for the purpose of saying that in our country, and no doubt in other countries too, we are a little sensitive, and excessively anxious to ensure the preservation of the people there from an undesirable class which might come from other countries. In my view the Resolution of Sir Robert Borden is the only course, or at all events it is a very effective course, and one that I quite agree with. This whole question is very far-reaching, and there is no doubt that at the present time, and I hope in the years to come too, there will be a very earnest and anxious desire on the part of each of the overseas countries to amend their naturalization laws so as to prevent the recurrence of those troubles which undeniably arose in all parts of the Empire. In post-war days people may forget the terrible atrocities that have been committed by enemy countries in this great War. Time is a great

healer, and in the course of ten or fifteen years from now it is very hard to anticipate whether we will not get back to a condition of things, as the result of the development of trade and intercourse of one sort and another, which may make people forget some of the enormous difficulties that presented themselves at the outcome of the War. I recognize that the matter is too big to settle definitely at this Conference, and I think the Resolution of Sir Robert Borden should be accepted.

Mr. Massey: Only that it expresses an opinion in favour of uniformity with which we do not all quite agree. I will not detain the Conference more than a minute or two. One instance of the difficulty of the Naturalization Law has occurred to me; it is a difficulty that we experience in New Zealand at the present moment. We have a New Zealand industry which is locally known in the Dominion as gum digging, which is peculiar to New Zealand. That has attracted a number of people whom we were in the habit prior to the War of speaking of as Austrians. Probably we have 3,000 of those men in the North Island of New Zealand in one particular locality. When the War broke out a good deal of anxiety was expressed as to the attitude that might possibly be taken up by those men who had come from the centre of Europe, let me say, for the purpose of carrying on the gum-digging industry in New Zealand by which they were, and are, able to earn very good wages; it was an industry peculiar to them. We set up a Royal Commission called the Aliens' Commission for the purpose of making inquiries into the position of any doubtful alien that might be resident in New Zealand, and great anxiety was expressed by the northen centres as to what might occur owing to the presence of these Austrian subjects in the North Island. I directed the attention of the Commission to these people and asked them to make the necessary inquiries. They went into the whole subject exhaustively, and they reported—I am not able to repeat the wording of the Report, or anything near it— to the effect that there was not the slightest danger from these people, and although they were nominally Austrian subjects their sympathies were not with Austria, but were entirely with Russia—that they were really Slavs, and that there was not the slightest danger to be apprehended from them. As a matter of fact, a number of these men asked the New Zealand Government to allow them to enlist for the New Zealand Expeditionary Force, and we did allow about 200 of them to go, but we were advised by the Imperial authorities that it was hardly the proper thing to allow enemy subjects to go into the British Army, even although we were quite aware that they were all right, and therefore we did not allow any more to volunteer. Arising out of that very difficult position difficulties may be experienced in the future, and perhaps an injustice may be done to some of these men to whom I have referred. That only shows the necessity for extreme caution in connection with any amendment of our Naturalization Law.

Mr Rogers: We have in Canada the very same condition only in a very much larger degree.

Mr. Chamberlain: That special class of case is recognized in the Memorandum from the Home Office we have before us.

Chairman: Perhaps Sir Robert Borden will read his Resolution as amended to the Conference.

Sir Robert Borden:

> "It is resolved that the proposals set forth in the Memoranda of the Home Office be commended to the consideration of the respective Governments summoned to the Conference. The Conference recognises the desirability and the importance of securing uniformity of policy and action throughout the Empire with regard to Naturalization."

General Smuts: Will you invert the two portions and start with the general statement at the beginning and then go on to say that should be referred to the respective Governments?

Sir ROBERT BORDEN: Yes, I think that would be better:

> "The Conference recognises the desirability and the importance of securing uniformity of policy and action throughout the Empire with regard to Naturalization, and it is resolved that the proposals set forth in the Memorandum submitted by the Home Office be commended to the consideration of the respective Governments summoned to the Conference."

General SMUTS: Yes.

Mr. MASSEY: Could you not say "if possible securing uniformity?" As a matter of fact I cannot pledge myself to support it as it stands.

Sir ROBERT BORDEN: That does not pledge anyone.

Mr. MASSEY: But it is implied.

General SMUTS: We are already bound by a previous resolution.

Sir GEORGE PERLEY: That is supposed to be the policy of the Empire as affirmed at the last Conference, and it has been put into force in certain parts of the Empire already.

Mr. MASSEY: Then if it is the policy of the Empire now it is not necessary to repeat it—that is my point.

Sir GEORGE PERLEY: If you could get the Acts made to suit the conditions of New Zealand I suppose you would agree that it is desirable for them all to be alike?

Mr. MASSEY: If possible, but I want to make it perfectly clear that I do not bind myself to support it all.

Sir ROBERT BORDEN: Well, you need not support anything at all under this Resolution unless the provisions of the general Act are such that New Zealand is prepared to adhere to them.

Mr. HAZEN: It simply commends the proposals for consideration—that is all it does.

Mr MASSEY: It goes further than that. The consideration part of it is all right.

Mr. CHAMBERLAIN: But surely this is a resolution which is as much directed to the authors of the Memorandum we have before us and of the Draft Bill as to the Dominions.

Mr. MASSEY: Quite so.

Mr CHAMBERLAIN: We say in this Resolution that it is desirable to secure uniformity. Well, uniformity can only be obtained by a process of give and take, and it implies that even if the Home Government thought some particular proposal were in itself very desirable, it might yet be right to sacrifice that opinion to the necessity of uniformity if the Dominions did not accept it.

Mr. MASSEY: Yes, so long as this is not taken to read that the Dominions are expected, or pledge themselves directly or indirectly to alter their legislation in conformity with the legislation that has already been agreed to in the United Kingdom.

Sir ROBERT BORDEN: Nothing of that kind is possible under the Resolution.

Mr. MASSEY: I want to make that perfectly clear.

Sir ROBERT BORDEN: Notwithstanding the Resolution of the last Conference, we suggested to the Imperial Government that before the Bill would be accepted by Canada certain amendments should be made. We had a long discussion; there was give and take, and eventually we arrived at a basis which was acceptable to both. That is the only way in which it can be carried out in any Dominion. If New Zealand thinks more stringent regulations are necessary, New Zealand has perfect liberty of action to consent to no general Act unless that Act embodies the provisions which she thinks necessary.

Sir EDWARD TROUP: If I may say so, the Act as it stands can be made stricter in the administration of it by any Dominion. The Act requires five years' residence, but there is nothing in it to prevent any Dominion requiring seven years before anybody can obtain naturalization; or they could refuse to naturalize any person of a certain nationality at any time.

Mr. MASSEY: Would not that destroy uniformity?

Sir EDWARD TROUP: I do not think it would, because the great point about uniformity is that if the certificate is granted it should be effective throughout the Empire.

CHAIRMAN: Are we in a position to pass this Resolution now? It runs as follows:

> "The Conference recognises the desirability and the importance of securing uniformity of policy and action throughout the Empire with regard to naturalization, and it is resolved that the proposals set forth in the memorandum submitted by the Home Office be commended to the consideration of the respective Governments summoned to the Conference." - (*Agreed.*)

Double Income Tax.

CHAIRMAN: The next subject on our Agenda is Double Income Tax,* as to which Mr. Massey is willing to hear the statement from the Treasury. Although it is put on the Agenda paper Mr. Massey is not, I understand, prepared to make a full statement of his case to-day. Perhaps the Treasury will be good enough to tell the Conference their point of view.

Sir ROBERT CHALMERS: The position is that our income tax is the subject of very great attack here in this country, and there has been a pledge given by the Government that an inquiry into the question of income tax of this country should be instituted as soon as possible, but it has been very clearly laid down that there can be no inquiry into that tax while we are actually immersed in the war and while the income tax staff, which is a very small staff, is itself hard pressed in raising money. That is the position as regards this country.

Mr. MASSEY: May I ask a question, because I am not clear about the point which has been mentioned? Do you say there is to be an inquiry?

Sir ROBERT CHALMERS: That is the position.

Mr. MASSEY: Then that blocks legislation.

May I follow that up by asking, is any amending legislation possible without inquiry?

Sir ROBERT CHALMERS: No, it is not contemplated that there should be any legislation. As a matter of fact, the whole staff is overworked. We have an income tax staff which is worked to the utmost at the present time, and the Government, to put it very shortly, do not contemplate, for this country, pursuing during the war the inquiry to which it is pledged while the staff is so very hard worked. That is the general position in this country as regards income tax.

Mr. ROGERS: Then what purpose is to be gained by bringing it up at this Conference?

Sir ROBERT CHALMERS: We have not brought it up.

CHAIRMAN: It is not brought up by the Treasury.

Mr. ROGERS: No, but I want to know what is the purpose to be served by going on with it?

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* *See* Memorandum printed on pp. 167-168.

Mr. MASSEY: You will hear.

Sir ROBERT CHALMERS: I should like to say that it is very much in the view of the Government that what we know as the Colonial view should be considered. We cannot, even on our own account, make an inquiry during the war, but as soon as the war is over it is contemplated that there should be a full inquiry into not only our own matters but also the views of the Colonial Governments concerned.

CHAIRMAN: In answer to Mr. Rogers, I ought to say that I do not think it possible for this motion not to be raised by some representative of the Dominions, because there is a very strong feeling about it, and it has been accentuated, as Sir Robert Chalmers knows and regrets as much as anybody, by the cases of women who are in England and have made this their home, and who have married soldiers in our different Dominion Forces and who are now widows and are living here. They have brought their cases before the Treasury, and also before myself, so I think the matter was bound to be raised. I do not know whether Sir Robert Chalmers requires any support from us, but I am sure Mr. Chamberlain and I realize that the depletion of staffs is making the discharge of their duties by Government Departments almost impossible.

Sir ROBERT CHALMERS: I am much obliged to you, Sir, for saying that about the Inland Revenue, which is very hard worked indeed.

CHAIRMAN: The collection of revenue is of a highly complex character; I only speak of it as an unfortunate person from whom it is collected, but, of course, it is a tremendously difficult task for anybody, and the staffs are absolutely depleted down to starvation.

Sir ROBERT CHALMERS: That is so. That is a difficulty with which the Government here is confronted. It is pressed very hard by various sections of opinion and interests to have a general inquiry into the income tax, but their answer to it has been: "No, we cannot face such an inquiry while the war is on and while the staff is depleted." That is the position as regards ourselves.

Mr. HAZEN: Practically the position then is that until the war is over people will have to go on paying two income taxes, and nothing can be done until the end of the war to correct what is believed by many people to be a gross injustice.

Sir ROBERT CHALMERS: That is my frank and sincere opinion, that the machinery is so overstrained that the present position must continue.

Mr. HAZEN: Then, what is considered by many people as a very great abuse, will have to go on existing until the war is over, until the Treasury can get more officials to look into the matter; is that it?

Sir ROBERT CHALMERS: I notice the way you put it, but it is also true, as regards the troubles and difficulties which are experienced by you, that they are put on much the same ground here at home. Those difficulties must continue here, and the Colonial difficulties will be treated in the same way as our own people are treated, who complain very bitterly. The Government is pledged to have an inquiry into those domestic things and it would also inquire at the same time into the Colonial position, but after the war.

Mr. HAZEN: If an abuse exists is not this a time when it is necessary to have it corrected, a time when so many men are over here from the Oversea Dominions, living here in consequence of the war, and marrying here in England in consequence of the war? Does not an abuse become more acute, if it is an abuse, at the present time than it was before the war commenced, and than it will be after the war is over? If that is the case, and if that question be answered in the affirmative, then should not some effort be made to deal with it now? Is not this the psychological moment when it should be dealt with.

CHAIRMAN: Mr. Hazen, might I say that I hold no brief for the Treasury, and I know they are well able to defend themselves, but I can assure you from my own knowledge that the question is a very big one indeed, because there are what many people believe to be injustices and inequalities in the imposition of the income tax here. It is a tremendous question, and I am quite certain that the Treasury would not be allowed to raise only one branch of it affecting some income taxpayers without covering the whole ground. I cannot imagine that such an inquiry could be conducted now, or that if it were embarked upon, the results, whatever they were, could be given effect to, because it would mean an entire revision of the whole of the machinery by which income tax is now collected.

Sir ROBERT BORDEN: Why was not it undertaken before the war?

CHAIRMAN: That is another question.

Mr. HAZEN: Mr. Chairman, would it be impossible to have an inquiry directed to the one branch of the subject that is of so much importance to those living in the Dominions? The other is more a matter of domestic concern to the people of these Islands, but would it not be possible to get officials to have an inquiry into the one branch of the matter, that is double income tax, without taking up the whole subject? The injustice, if it is an injustice, to people paying income tax twice on the same income certainly does seem to be very great.

Sir ROBERT CHALMERS: There are a great many difficulties.

Mr. MASSEY: Like Mr. Hazen, I think we are all pleased to give the Treasury an opportunity of explaining their point of view to the Members of the Conference, but I think each and every one of us must regret to hear from Sir Robert Chalmers that it is not possible to go on with the inquiry which is contemplated and which seems to be necessary before legislation is drafted and placed before the House of Commons. That, of course, makes it impossible to do anything as long as the war lasts. That I understand to be the position.

Sir ROBERT CHALMERS: That is the position which is forced upon us, a position we have to take up as against our own taxpayers who, as Mr. Long remarks, are very vocal and insistent about their claims being considered. May I just add that you will be aware that there was a concession made a year ago to the Colonial taxpayers to the extent of one shilling and sixpence in the pound as a temporary measure?

Mr. MASSEY: Yes, I understand all that; but following up the last remarks of Sir Robert Chalmers, they seem to me to suggest that because taxpayers who belong to the Dominions have not been sufficiently vocal their case has not been heard and it is not intended to consider it. If that is the case, I am afraid we shall have to be more vocal in future.

Sir ROBERT CHALMERS: I venture to interpose here to say that I did not say that. I said that our own people could not be considered at all and that there is very great outcry, and that we could not contemplate the Colonial inquiry, much to our regret.

Mr. MASSEY: So far as we are concerned, the position taken up by the Treasury need not prevent the Conference expressing an opinion; and I am more strongly of opinion than ever, now that we have heard the statement and understand the position, that we should not leave London without expressing a very definite opinon from the point of view of our respective countries. I am not going to discuss the whole question, but I will say this, that many of our people feel they are suffering very serious injustice under this system of double income tax. I thoroughly understand that and agree with it, but to my mind an even more important point is the way this system will affect the community as a whole. That is the important point of view according to my way of thinking, because in countries like Canada, New Zealand, and the other Dominions—I do not want to be drawn into discussing the general matter, and I will only take this point and then leave it—the way it is going to affect our countries is that we are

countries which must have capital for the purpose of development: there is no question about it. We have not the capital in our own countries. Not one of us, I think, can be said to be in the ordinary sense of the term a rich community as compared, say, with the community in the United Kingdom. Very well, if the people who invest money in our country are going to be taxed there—because I think it will be admitted that it is fair and just and equitable to tax income in the country where the income is earned, that is, in the country of origin, and I do not think that can be disputed for the purpose of our income tax, or land tax it may be, but I leave that—and if then the same income is going to be taxed again in the United Kingdom, it will mean that the people who possess money and have been in the habit in the past of investing money in the Dominions will no longer do so, and will probably withdraw what they have invested there already. There are a number of small points in connection with this subject, but I am not going on with them to-day, and I do not want to be drawn into a general discussion if I can avoid it, but I could not allow the matter to go without saying something after what has been said by the representative of the Treasury.

Sir Robert Chalmers: I also do not want to enter upon a discussion or break a lance with you on the matter, but you will have to be very careful, I submit, to see that you are not giving preferential treatment to British capital which goes to British colonies as against its use in the United Kingdom or elsewhere.

Mr. Massey: What do you mean by "elsewhere"?

Mr. Hazen: The United States.

Mr. Massey: Well, I am a believer in the theory of preference.

Sir Robert Chalmers: I think you would have a very full measure of it if you were to extend that doctrine very fully, but I do not want to enter, any more than you do, upon the general discussion.

Sir Robert Borden: I am greatly surprised at that point of view, which is entirely new to me. Is there really any objection to a policy which would introduce British capital to assist in the development of the Oversea Dominions and of the Empire as a whole?

Sir Robert Chalmers: None whatsoever. I was just raising the point in order that it might not be forgotten that there might be more than encouragement—that there might be preferential treatment—even against the Mother Country. I do not want to argue it here.

Sir George Perley: That makes Mr. Massey's argument all the stronger from the point of view of the Empire.

Sir Robert Chalmers: From his point of view.

Sir Robert Borden: If we are going to develop this Empire and endeavour to co-operate with each other, it would not seem a wise policy that foreign capital coming into our country and exercising control over our natural resources should be in a better position than British capital employed in the Oversea Dominions for that purpose. I am ready to hear what can be said against that view, but I must confess that it does not occur to me at the moment that very much can be said against it. The difficulty we have had in some of the Dominions is that German capital has come in and has acquired very unfortunate control of the natural resources of the Empire. If German capital coming into those Dominions is not subject to double income tax and British capital coming in is so subject, such a policy would tend to a perpetuation of the conditions which have been pretty generally recognized as unfortunate, having regard to our experience gained in this war.

Sir Robert Chalmers: You must not take me as combating or endorsing the views that you put forward. I am only indicating that there was an aspect of the thing which would have to be seriously taken into account, and that you would have to take into account the question of residence in connection with the payment of income tax; and

as to that the Treasury is very clear that, as soon as we can have an inquiry, the various views which have been indicated here and which could be amplified should have full opportunity of being disclosed and discussed.

CHAIRMAN: Before going any further I should like to be allowed to say that I think we must impose some restraint upon ourselves, however unpleasant it is, because Sir Robert Chalmers can only speak here obviously from the Treasury point of view as the permanent head of the Treasury responsible for the work done there. When we come to a question of policy involving preferential relations, etc., obviously that is a question which could only be replied to by the Chancellor of the Exchequer himself. Unfortunately, owing to the war, we cannot have him here, as he should have been if we had been meeting in peace times, when we could raise the whole question. Of course, Sir Robert Chalmers is bound by the policy of this and preceding Governments up to date, and cannot embark upon discussion as to any change of policy, whatever his views may be.

Mr. CHAMBERLAIN: May I say one word, not so much as the Secretary of State for India but as one who has been Chancellor of the Exchequer, and say it not on merits but merely to make clear if I can to our colleagues from overseas what are the enormous difficulties of the British Government in dealing with this matter. It has been suggested that the Treasury might take up the question of the double income tax payable in the dominions and at home as a separate and isolated question and deal with that rapidly. I venture to say—and I do not think anybody who has had any experience of our income tax law and administration would deny it—that the questions raised really go to the root of our whole income tax administration, and that we cannot in fact deal with the question of double income tax as affecting the dominions in isolation. Really in raising that you raise the whole basis on which our existing income tax is collected. I feel as strongly as any one that the question merits inquiry of the most careful kind at the earliest possible moment; but in view of my experience, both in office and in opposition, of income tax discussions, I can safely say that it would be quite impossible administratively, and I was almost going to say, even more impossible as a parliamentary matter, to deal with that problem in isolation without dealing with the general principles on which the British income tax is based.

Sir JOSEPH WARD: There has been another matter introduced into this discussion that does not come under the question of income tax at all, and I feel that the views expressed upon that very important matter of the deflection of money to the oversea countries, and the money that is invested there not being dealt with upon terms similar to that of monies from other countries and to the disadvantage of money invested from this country in the oversea countries, is a question of high and important policy for which the Government of this country should alone be responsible. It would be disastrous if the policy of the Government of the day of this country favoured a differentiation against the investment of the monies of the people of the United Kingdom in any of the oversea countries to the advantage of monies coming from any of the alien countries to be invested in our countries. In the long run, if money coming from outside countries, from foreign countries or enemy countries, was at an advantage in the shape of being excluded from the double income tax, it would kill the investment of money from the Old Country in the British Territories. The effect of what I have just been suggesting has been very apparent in recent years through the action of Germany, through the very effective financial organization which they have had in operation, and in my opinion it would be a very good thing if this country could have a similar organization in order to prevent the possibility of the former state of things recurring in the future. I do not regard Sir Robert Chalmers as in any way committing himself, or the Treasury, or anyone to a policy. In my opinion it would be of greatest value to the oversea

countries when the time comes for consideration of that matter of high policy in regard to the investing of money, if there were some financial institution which has been already suggested, in the shape of some great commercial banking concern directed and controlled by responsible men attached to the Government of the day both here and in the Oversea Dominions. That would be invaluable to all the oversea countries, and would be a tremendous check against any steps made directly or indirectly from enemy countries for investing money to our detriment in the Empire.

Having briefly said that, I want to say, on the question of double income tax, that we in the oversea countries—and I assume that the others are in the same position as the country which Mr. Massey and I represent—like British statesmen and the British Parliamentarians, and above all the Treasury (with whom we sympathise very much as to the difficulties they have at present) have been pressed by practically every section in our community for quite a long time upon this question of double income tax; and after this War arose the whole position was accentuated. It was quite well recognised that a concession was made here by the reduction of one shilling and sixpence in the pound, but that did not meet the accentuated position which arose in consequence of the War. Now in all our countries we are providing very large sums of money by increased taxation for the purpose of doing our part. The Treasury has been of enormous assistance to all of us—there is no question about it—but we are providing large sums of money, and even that part which in the early period of the War the British Treasury provided we have got to pay for sooner or later, and our people are being subjected to very largely increased taxation, and a good deal of that taxation will be of a permanent nature for the purpose of paying the interest and extinguishing the debts incurred for War purposes.

Now this is the position in which a number find themselves. They are not only paying the ordinary double income tax, but many of them who of necessity have to come to this country are paying the double War Income Tax, if I may use the term; and the matter was so difficult and so very important from our standpoint, that we did not wait for the action of the British Government in order to give relief to these people in New Zealand. As anyone can find in our Act—in the Land and Income Tax Act of last year—with the concurrence of my colleagues I put in a special clause to relieve New Zealanders from double income tax, and it raises the question whether we should continue it in the event of a consideration of this matter being deferred for a long period. This is the clause, which is the law of the country at the present moment: "Income derived by a person resident in New Zealand but not derived from New Zealand shall be exempt from income tax if, and so far as the Commissioner is satisfied that it is derived from some other country within the British Dominions and that it is chargeable with income tax in that country." The meaning of that is that in the case of a person resident in New Zealand, if he is deriving income from London and pays income tax on it here, we remit that amount entirely as far as he is concerned so as to prevent him being mulcted in the double income tax. After this war is concluded it is quite certain that we will all have to readjust our taxation. None of us knows at present what taxation will be required. If when the War is concluded the Home Government or the British Treasury cannot within a reasonable period tell us how far they can consider the urgent appeal which has been made by all oversea countries to prevent the continuance of the double income tax on the same British subject, in our countries we will not know quite what to do. We will have to continue to penalise British subjects within the British Empire—the very thing we are trying to avoid at the present juncture with a view to the prevention of some of these troubles which existed before the War and which we wish should be discontinued after the War, that is the consolidation of the Empire by helping our own people within the Empire which does not in the ordinary sense come directly under the purview of the high

officials of the Treasury— it is not their special business. Our point of view is to try to bring about co-ordination within the Empire and to help the people of the Empire to be sufficiently strong to withstand within the citadel of the Empire the commercial war which will be waged against us by enemy countries and other countries in the natural course trying to get the trade of the world. We will have the British merchant all over our Empire handicapped to a very much greater extent than the men in foreign countries will be even when trading with portions of the British Empire. It is to further this desirable policy that we want the present double income tax removed and want the powerful aid of the Treasury to that end.

Now the matter is one of very great urgency indeed. When Sir Robert Chalmers tells us (and I accept his statement unreservedly on the point) that the exigencies of the public service here due to the War are such that the depletion of staffs renders it impossible for them to go into this question now, I recognise that we have got to wait until circumstances change and it is possible for that information to be furnished; but it does not relieve the gravity of the way in which it has affected traders all over the British Empire. You have in this country an Excess Profits Tax of sixty per cent, and we have in New Zealand an Excess Profits Tax of forty-five per cent. We have increased our income tax and you have increased yours. Heaven only knows what we will require before this War is over in the matter of income tax in order to pay our way and make proper provision to pay off the indebtedness which has been cheerfully incurred both in the British Isles and in the oversea countries. But there can be no doubt that on our return to New Zealand, at all events, while they will be loyal and true and staunch to whatever is required owing to the exigencies of the War and the necessities of the situation, they will press through the Members of Parliament upon the attention of the Government there this question of the double income tax which is prejudicing them in connection with the development of their British Empire trade. Increase and development of trade after the War is over is, however, essential, as after the forty-five per cent profits tax has gone out of existence when the War ceases, in some form the necessary increased taxation is to be found to enable us to pay our way with the increased indebtedness of a good many millions of money put upon the people there for the purpose of helping to win out this War.

I express an opinion on this point with diffidence, but I think the course that is suggested by Sir Robert Chalmers is, under the circumstances, the only one that can be followed. There must be consideration extended to the Treasury, and I think there will be by the people whom we represent, and by ourselves too, due to the circumstances which have compelled them to deplete their staffs for fighting purposes.

Sir Robert Chalmers: Yes, it has been principally for fighting purposes.

Sir Joseph Ward: I think we are full-hearted in our concurrence as to the necessity for that, and we are delighted with the way in which it has been carried out by the staffs of the Departments here and in our own countries too. It appears to me, Mr. Long, that the Conference should pass a resolution directing the attention of the British Government and of the Chancellor of the Exchequer (Mr. Massey and I have already done so personally, and probably other gentlemen at this table have also done so) to this old and sore story which existed prior to the War and still continues. I represented it on two former occasions to two Chancellors of the Exchequer, but then, of course, with the necessities of the purse having to be provided for, they could not change the incidence of taxation sufficiently to warrant the repeal of the double imposition. It looks to me as if this Conference should pass a Resolution urging upon the Chancellor of the Exchequer, from an Empire standpoint, that the continuance of a dual system of taxation upon a British subject, because he transfers part of his capital for a time from one portion of the Empire to the heart of the Empire should cease.

That, particularly after the war, is going to be so heavily felt by the people that more of them will, in my opinion, in order to avoid the double taxation transfer their head offices to a neutral country.

Mr. MASSEY: They are doing it now.

Sir JOSEPH WARD: It is already being done. I know of one important concern, and of another important concern which is well known to gentlemen here, which has transferred its headquarters to the United States of America. I know of men who at present are awaiting a decision upon this question of double income tax before they decide whether they are going to take a similar course or not. I do not believe any of them want to go outside the confines of the British Empire, but after all in this world it has to be remembered that if the taxation upon great organizations with large capitals invested in them becomes sufficiently oppressive to make the return on the capital not reasonable in relation to the amount they have earned, and also taking into account their personal labour in normal times, it really becomes not worth their while to go on, and in the ordinary course they either get rid of the business, split it up and get other people to take it on, or they look around and see in what place they can get a reasonable amount of return as the result of their efforts in order to make it worth their while to go on with it.

One illustration came before me quite recently regarding an old and great Australian business, which disclosed a position very similar to what I have indicated. They are now considering, and seriously too, the removal of their head office to the United States. I think we have all to recognize that in the changed world which has been brought about by this great War it is going to press us in some respects to change the system of taxation which up to now has existed in different portions of the Empire, in the Homeland as well as in the Oversea Dominions. No system of taxation is agreeable. The system was not agreeable to people in pre-war days and it is going to become more oppressive than ever in the after-war days. I think it is only fair to say that the Chancellor of the Exchequer, when Mr. Massey and myself saw him, expressed his sympathy in the direction of doing what is urged here. The difficulties due to the War time were naturally before him and he pointed them out to us, and while I am very anxious to see this change, as one who wants to be fair both to the people in our own country and those with whom we have to deal, I personally am of the opinion that during the actual currency of this War until the British Chancellor of the Exchequer knows where he is going to stand at the end of the War he cannot run the risk at present. Even although it is unpalatable to us and very unfair in its incidence to the people who are concerned, I do not believe in the present circumstances that the Chancellor of the Exchequer, on behalf of the British Government dare run the risk of giving away twenty, thirty, or forty millions of the revenue of this country. If it were done at the present moment it would necessitate the imposition of an equal amount of taxation. It would in that respect be pretty hard upon the people. But as soon as an inquiry can be held into this matter I am not only hopeful that a method may be found to relieve the British taxpayer from paying the double income tax, but I am very hopeful that the Treasury, with its wonderful resourcefulness, may, as soon after the end of the War as is possible, be able to advise the Chancellor of the Exchequer in time so that we should know in the different countries what is intended to be done in that respect, because we have all to shape our local taxation, when we have a knowledge of what is intended to be done here in connection with this double income tax. The tax is unjust and inequitable. It is prejudicial to the best interests of the Empire and ought to go for ever as soon as possible. I am satisfied that it cannot be defended and must be done away with.

I do not want to take up the time of the Conference upon the question, Sir, except to say that I know it has been pressed upon the members of the Government

of New Zealand from the North Cape to Stewart Island, that is from end to end of the country, and there is a very earnest and anxious feeling entertained by the business people also in this country—which is probably better known to you than it is to us—and by the business people in our countries too—that the continuance after the War of the old system of double income tax on a British subject within the British Empire is going in the long run to have a very disastrous effect.

I feel it my duty upon an occasion such as this to say what I think, so that those who are considering the matter may have our views before them and I trust they will look at it from our standpoint as well as from theirs.

CHAIRMAN: Do you mean to move a Resolution?

Sir JOSEPH WARD: No. Mr. Massey will.

Mr. MASSEY: I think it is hardly fair to continue the discussion at present. There is a good deal to be said about this subject upon which I feel very strongly, and I shall probably ask the Members of the Conference to agree to a Resolution which should come into operation at the earliest possible moment. The Members of the Conference know the position with regard to finance, not exactly as well as the representatives of the Treasury, but generally, and we know that money must be got; but we do think the burden of taxation should be distributed fairly, and that is not the case at present.

Mr. ROGERS: Probably Canada has a stronger reason than any of the other Dominions.

CHAIRMAN: Is it worth while continuing the discussion now?

Mr. HAZEN: I hope Mr. Massey and Sir Joseph Ward will prepare a Resolution to be submitted to the Conference on the subject, because I feel it should not be allowed to drop here simply on the statement of Sir Robert Chalmers that the Treasury cannot do anything about it because the officials are too busy.

Mr. MASSEY: No, personally I should not accept that. I understand the point of view of the other side as well as our point of view. I thought I had made it clear, I had not the faintest idea it was coming up to-day, and I had not even prepared a Resolution, and I have not read the correspondence which has come to me, so that I do not think it would be fair to people who have communicated with me, although I think I understand the subject, to go on with it at the present moment.

Mr. CHAMBERLAIN: I think, if I may say so, a little too much is being put upon the officials. The officials of the Inland Revenue in this country are having to collect a taxation many times greater than what they were collecting just before the War, and they are having to do it with a depleted staff in consequence of the number of men who have been allowed to join the colours. But that is not really the whole difficulty. How is the Chancellor of the Exchequer himself, at the present time, to give his time to the recasting of the whole income tax law of the British Government? It is one of the most complicated systems of taxation, depending very largely on judicial decision. At any time it would be a most difficult subject to deal with, and it is, no doubt, more difficult, and every grievance that arises is more aggravated by the very high rate of tax which is now in force. This double income tax grievance is, of course, enormously increased by the very high rates which are in force, but I would not like it to go forth that it is merely because the Treasury officials are too busy to attend to the business of the Empire that this matter is not taken in hand at once. I venture to say that when it is taken in hand it will require the best brains of the Chancellor of the Exchequer, and probably of a good many other people besides, before anything like a satisfactory solution is arrived at; and all these people at the present time are working to the full extent which human nature permits.

Sir EDWARD MORRIS: If Mr. Chamberlain means by that that the difficulty will be to find sources of revenue, and that the inquiry by the Treasury will be connected with the difficulty of finding new sources of revenue—

Mr. CHAMBERLAIN: No, that is the least part of it.

Sir EDWARD MORRIS: Then what about the general principle? Cannot the general principle be decided, and afterwards find the new source of revenue?

Mr. CHAMBERLAIN: It is not the finding of the new sources of revenue which is the difficulty, though that is a difficulty, but the question of remodelling the whole of your Income Tax Acts. What you do in this case will bring you up at once against questions of the most serious consequences with other countries. I am sure any one who thinks about it will see that it is so. If you are going to recast the taxation as between ourselves and the Dominions, you will at once raise questions as regards our right to tax, and our practice of taxing foreigners resident here, or British income derived from foreign countries. They are very big questions. I do not want in the least to prejudge the decision. All I am wanting to urge is that there are questions which cannot be settled hurriedly, which are really questions as difficult, I think, as any you could find in the realm of fiscal policy.

Mr. MASSEY: Where there is a will there is a way.

Sir GEORGE PERLEY: If we have finished the general question, there is a special point I would like to bring up while the Treasury officials are here. We are all being urged, or all parts of the Empire are being urged, to spare as many ships as possible to come here and trade between this country and the various Allied countries. The question has arisen whether Canadian ships, for instance, which come over here, either voluntarily or after being requisitioned by the Canadian Government for that purpose, will be liable to pay the British Income Tax and the Excess Profits Tax here. I am informed that the Income Tax assessors say that as the agencies or management of these ships during the period when they are so engaged are in the hands of British agents, such steamers will be liable to pay these taxes here. As the Canadian Government is being urged to requisition ships for that purpose, and as the individual owners send them over to help out the situation, I hope that it will not be suggested that they should, under those circumstances, be liable to pay the Income Tax and the Excess Profits Tax here.

Sir ROBERT CHALMERS: In reply to that I may say that it would depend on an infinite number of special circumstances. Primarily, I think, speaking offhand, it would depend upon where the control of the business was, and where they make the contracts; but if you, Sir George, will address the Inland Revenue they will give you a very complete answer on the facts, and it could be further discussed if there was any trouble about it. That is not so big a question as the double income tax.

Mr. HAZEN: It is an important question.

CHAIRMAN: Most important.

Mr. HAZEN: It is most important for this reason, that the Canadian Government is being requested from time to time by the British authorities to requisition ships which are on the Canadian Register, and the constitutional right to requisition is vested in Canada alone and not in the Imperial authorities. Therefore, they ask us to requisition these ships. In many cases we do so. There have been cases where we have declined to do so because we felt under the circumstances it would be too great an interference with the trade, which is absolutely essential to the Dominion, to do so. If when we requisition those ships and they come over here they are to pay tax into the British Exchequer, it raises a question which is a very serious one and one which might at times add weight in the determination of the question of whether we should requisition those ships or not.

Sir ROBERT CHALMERS: Quite so; that would depend on the facts of any particular case—on control and on the origin of the contract, and if there is any trouble about that I will promise that very careful consideration shall be given to it, but it must be a practical case.

Mr. CHAMBERLAIN: Surely, this is a case for conference between the Shipping Controller, the Dominions, and the Treasury; it is not a question to be dealt with in the case of each particular ship and on technical grounds. It is a broad question of policy. The Shipping Controller is pressing for the requisitioning of ships and the two departments of the British Government must conform their policy the one to the other.

Sir ROBERT CHALMERS: Quite so; I am much obliged to you, Sir, for mentioning that.

Sir GEORGE PERLEY: What I should say is that if the law should impose such taxation the case of New Zealand would be that if they had to pay the Excess Profits Tax in both places, they would be worse off than if the ship were not employed at all —if they had to pay sixty per cent here and forty-five per cent Excess Profits Tax in New Zealand.

Sir JOSEPH WARD: I am very glad to tell you, Sir George, although it has nothing to do with the work here, that an arrangement between the Inland Revenue Department, the Chancellor of the Exchequer and New Zealand, which is quite satisfactory from our point of view, has been made and which, I understand, is to be dealt with in an effective way, by which we will prevent the possibility of taking 105 per cent out of anybody between the two of us from a man who only earns 100 per cent.

Mr. ROGERS: Are you under preferential treatment?

CHAIRMAN: May we adjourn this and take Mr. Massey's resolution as to Earl Grey's scheme for a Dominion House (*Agreed.*)

Earl Grey's Scheme for a Dominion House in Aldwych.

Mr. MASSEY: I do not think I need detain the Conference, Mr. Long, upon this question. I am bringing it up on behalf of, and at the request of, Earl Grey, a former Governor General of Canada, and a gentleman whose name is as well known in the Overseas Dominions of the British Empire as in the United Kingdom itself. In acting for him, let me say that I am quite sure I express the opinion of the other Members of the Conference, as well as my own, when I say that there is no more ardent and enthusiastic Imperialist than the gentleman whose name I have mentioned, and one who has never missed an opportunity of advancing the Imperial cause.

A few years ago Earl Grey noticed that the offices of the different Dominions and Dependencies of the Empire were spread all over London, to the great inconvenience of the British people and of the people from the different Dominions themselves. I do not need to go through the list, although I have it here, but I will just take a few of them. Canada, for instance, had its offices in Victoria Street; New Brunswick in Southampton Street; Prince Edward Island in Westminster; New South Wales in Cannon Street; Victoria in Melbourne Place; Queensland in the Strand; Western Australia in Victoria Street; New Zealand in Victoria Street; British Columbia in Salisbury House, and Ontario in the Strand. Earl Grey and a number of gentlemen acting with him, who thought as he did, conceived the idea of making use of a most magnificent site right in the centre of London for the purpose of what we have been in the habit of calling a great Dominion House—a great Dominion edifice—in which the whole of the Dominions, and, possibly, the Dependencies of the Empire, might have their offices at which their representatives would always be present—I am now speaking of their commercial representatives—and on a site which would be a great convenience to the people in the heart of the Empire itself and to the visiting citizens from the other Dominions and Dependencies. The site they had in view is known as the Aldwych site. It is the property of the London County Council, and the sug-

gestion put forward was that it should be leased to those gentlemen who were interesting themselves in the Dominion Offices at, not exactly a nominal rent, but a reasonable rent—one they could afford to pay.

I may mention here the names of the provisional directors, beginning with the Right Honourable the Earl Grey, His Grace the Duke of Norfolk, Mr. George Beetham, of New Zealand (a very prominent citizen of New Zealand, trusted and well known in every part of it); Mr. Harry E. Brittain—I do not think I need describe him to members of the Conference; Mr. George McLaren Brown, a Canadian, I understand; the Right Hon. Lord Chelmsford; at that time Sir John Henniker Heaton was also taking an active interest in it, but he has gone to "the bourne from which no traveller returns," and we unfortunately shall not have his assistance in this or in any other respect; the Right Hon. Sir Leander Starr Jameson, of South Africa; the Right Hon. the Earl of Plymouth, and Colonel Sir Edward Ward, Baronet. Those were the provisional directors.

The option obtained from the London County Council was to secure from the Council a building agreement for a lease of the whole of the site which I have indicated for a term of ninety-nine years from the 25th December, 1913, or any other date to be arranged, at a rent the particulars of which are set out in the book before me,* and which I do not need to enter into at present. Quoting from the proposals of Earl Grey and the provisional directors, they say—and I am only going to quote very briefly indeed: "The Dominion House which it contemplates would be an active living part of the Imperial organism. It would be one of the great realities of the Constitution—as quickening to every thoughtful mind as Westminster Abbey, the Houses of Parliament, or the courts of justice. Under its great tower men would know that dominions remoter than the Pole were discharging some of the great functions of the various economy. All those connections of trade, emigration, and finance that unite the Dominions with the Motherland would radiate to and from this impressive focus."

Its aims are thus stated by Earl Grey in a letter to the Improvements Committee of the London County Council: "It would be possible . . . . . to concentrate on the Aldwych site the Dominion Government Offices, now widely distributed in different parts of London. . . . . It would also be possible to focus the attention of the home consumer more effectively on the quality of the products grown in our Oversea Dominions. . . . . It would also be possible to include in the buildings to be erected on the Aldwych site accommodation which would meet, not only the official requirements of the Dominion Governments, but the commercial and social needs of their respective peoples." Then the pamphlet goes on: "The second purpose —that of a Permanent Exhibition of Empire products—is of well defined value, both for the extension of Dominion trade in the British market and for the guidance of emigration." Then there are a number of particulars given with regard to the option given, which I am prepared to read, but which I do not think it necessary for me to repeat.

The proposal, I may say, attracted a very great deal of attention, not only in the United Kingdom, but in every part of the Dominions, and there has been supplied to me a list of leading articles and some of the leaders from a very large number of the principal papers in the three kingdoms. I am not going to quote them, but I am quite prepared to show them to any one who takes sufficient interest in the matter to read them. Amongst others which supported the proposal were the *Times*, the *Daily Telegraph*, the *Morning Post*, the *Daily News*, the *Daily Chronicle*, the *Standard*, the *Pall Mall*, the *Financial News*, the *Northern Whig*, and the *Globe*. I have read the articles and they all strongly supported the proposal at the time it was put forward, and I do not know that they have changed their opinions since that date; but if the press represents public opinion—and I am not prepared to admit that any individual

* Entitled "The Dominion House."

paper represents public opinion, because very often it does not—I am prepared to say that when such a large proportion of the papers of any country expresses an opinion in favour of some proposal, they must undoubtedly have public opinion behind them. I do not think there is any going back from that.

I am not going to follow this point further. I do not wish to take up the time of the Conference, and I am sure Earl Grey would not desire me to do so. I may, however, call the attention of members of the Conference to the fact, because it has been admitted that since the proposal was first put forward in 1913 the position has changed to a certain extent. The war itself has brought about an enormous change, and I know perfectly well that even if this proposal were proceeded with it is impossible to do so during the war period. But there have been other changes. The Government of the Commonwealth of Australia have erected very elaborate buildings on their own account for the purposes of the Australian Government, and I do not know, because unfortunately we have not a representative of Australia present, whether they would be prepared to dispose of the buildings which they have erected and into which they have just entered and take up along with the other Dominions a scheme such as that proposed by Earl Grey and his friends. I am not able to express any opinion or to make any statement with regard to that point. New Zealand has done the same thing. We were sadly cramped for room in the offices we formerly occupied in Victoria street, and it became urgently necessary that we should make a change in view of the increasing business of the Dominion and the increasing number of the staff. Arrangements were entered into some two or three years ago, prior to the war really, for a site in the Strand. Probably members of the Conference will have noticed that site, because I am glad to say that, owing to the attractions arranged by the High Commissioner and his staff, it attracts a good deal of attention from the people passing backwards and forwards, and especially from the Dominion visitors, not forgetting the soldiers. Very convenient offices have been erected there for the purposes of the New Zealand Government and we are already in possession. I do not say that the Strand site is the best site in London; probably it is not. Personally, I would have liked a corner site or some more commanding site, but still I am bound to say it is a good position and the offices are very convenient. Speaking as head of the Government of New Zealand, I could not commit that Government or Parliament to give up these offices even for the purpose of joining in such a proposal as that put forward by Earl Grey; it is a matter which would have to be dealt with in New Zealand, and I cannot possibly deal with it here.

I do not need to follow the position out further. I said I would not take up the time of the Conference for any lengthy period, and I have not done so. I have simply placed the bare facts before the Conference, and I should like to hear the opinions of the gentlemen present. But I would like, before leaving the matter, just to remind members again that this is an Imperial conception brought forward for Imperial purposes, and, if it had been possible to give effect to it, I believe it would have been a very good thing to have done.

Mr. ROGERS: Under normal conditions it might have been a very laudable undertaking and very desirable in many ways, but it was a very expensive proposal and one to which we gave grave consideration in Canada, but were never able to arrive at any conclusion that it would be wise to undertake the responsibility of joining in such a proposal as that which is presented, and especially now, as Mr. Massey has said, in view of war conditions, I do not think it would be possible for us to give it much consideration in the hope of being able to join, at the present time at all events. Canada is probably in a worse position for accommodation in England than any of the other Overseas Dominions. We are very anxious to find a place which would be a suitable home for the Dominion of Canada, but I think we would have to regard this proposal as altogether too large for our immediate necessities. When we do find a home we will probably follow the example of the other Dominions and find a location of our own.

SESSIONAL PAPER No. 42a

Sir ROBERT BORDEN: I concur in all that Mr. Massey has said with regard to the fine services which Earl Grey has rendered to the Empire. I also appreciate the fine conception to which he has devoted so much time and energy, of having a building in London in which the representatives and staffs of the various Dominions should be housed, and which, by reason of its commanding site, and also by reason of the edifice itself, would be impressive to all those who had the opportunity of seeing it. But the situation was complicated, in the first instance, by the fact that Australia had already made arrangements for the erection of a large building on a site immediately adjoining, and therefore the question came down to a consideration of what New Zealand, South Africa, Newfoundland and Canada would be prepared to do. I am under the impression that it would be impracticable to proceed with any effective consideration of the proposal at present. It may also be said, from the standpoint of the various States and Provinces, that a variety of sites where the opportunities to emigrants are set forth is attended with certain advantages because a greater number of people may become acquainted with the resources and opportunities in the various Oversea Dominions than would be possible if they were all housed on one site. In Canada we have various Provinces with sites selected in commanding positions, sometimes not very near each other, and in that way, the advantages offered to persons who have in mind emigration to Canada are perhaps made known to a greater number of persons than would be possible otherwise. However, the conception which Earl Grey had was undoubtedly a very fine one, and too much credit cannot be given to him for placing the proposal in an effective way before all the Dominions concerned. I am inclined to think that it is not a proposal which we could take up at present with any idea of making much progress with it, and I agree that it should be deferred at present.

Mr. MASSEY: The difficulty is with regard to an extension of the option.

Mr. HAZEN: One of the Canadian Provinces, British Columbia, has already erected a very handsome building of its own and would not be disposed, I fancy, to come into a scheme of that sort.

CHAIRMAN: If you do not desire to take it up now, I imagine all you can do is to adjourn it *sine die*.

Mr. MASSEY: No. I should like to get the opinion of General Smuts, as representing South Africa, and then I propose, after having heard the various opinions, to dráft a motion thanking Earl Grey for his conception, and for all he has done, and saying the time has not yet come.

Mr. HAZEN: I do not think we should pass a Resolution which would convey to Earl Grey the impression that we are in favour of, or endorse, the idea. If we do that it might encourage him to go on and get a further option upon this site.

Mr. MASSEY: We can make that quite clear.

Mr. HAZEN: I am not at all prepared to say that even if the times were different and if they were normal the Government of Canada would be prepared to go in for a scheme of this sort. I think in the first place there is doubt as to the site being a good site, but apart from that I know there is in Canada a public opinion along this line, that it is better that the different Provinces should have homes and headquarters of their own rather than that they should all be grouped under the same roof. I am not going to elaborate the reasons for that, but I know there is an opinion of that sort. I do not know that it is the opinion of the majority, but there is quite a strong public opinion to that effect. Therefore, whatever we do, I do not think we should do anything which would encourage Earl Grey in the idea that when the war is over this scheme would be proceeded with, or that we are in favour of proceeding with it.

CHAIRMAN: Mr. Massey has brought the matter before the Conference, but has told us that New Zealand has its own office and that he is not prepared on behalf of the Government of New Zealand to fall in with the suggestion without consulting

His Government. The Commonwealth of Australia have established a very fine building—I was present at the opening of it—and I do not know whether they would consider abandoning that building in order to take part in the new scheme. Canada takes the view that they could not commit themselves, and that it would not be fair to Earl Grey. Therefore, cannot we deal with it by Resolution now?

Mr. MASSEY: I want to thank Earl Grey.

Sir EDWARD MORRIS: I think a Resolution thanking Earl Grey would be about as far as we can go. I agree with Mr. Hazen that it would be very unfair to keep the thing in the air any longer.

CHAIRMAN: It has nothing to do with us; it is a matter for the Dominions.

Mr. ROGERS: I agree with that proposed Resolution.

CHAIRMAN: How long are they going to keep the site open?

Mr. MASSEY: I think the time is about up now.

General SMUTS: They had an option for three years.

Mr. HAZEN: That was the option first, and then there was an extension of that option in the hope that something might come of it.

General SMUTS: I do not think we should in our Resolution encourage the matter.

Mr. MASSEY: The option was for three years from the 24th June, 1913.

CHAIRMAN: Then it is up now.

Sir JOSEPH WARD: I think we ought to thank Earl Grey for his offer, and state that the Conference cannot see their way to deal with it.

CHAIRMAN: I think he ought to be allowed to realize it. I feel we ought to let Earl Grey and those co-operating with him know the view of the Conference.

Sir ROBERT BORDEN: If Mr. Massey would give his views on the Pacific question some of us could draft the Resolution with regard to the Dominion House.

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CHAIRMAN: The suggested Dominion House Resolution is as follows:—

"The Conference, in expressing to Earl Grey its deep appreciation and warm thanks for the great interest that he has taken in the proposal to secure the Aldwych site and to erect thereon a building suitable for the purposes of the Dominions, considers that it is not practicable to proceed with the proposal under existing conditions or in the immediate future." (*Agreed.*)

Adjourned to Monday next at half-past ten o'clock.

ELEVENTH DAY.

Monday, 23rd April, 1917.

The Imperial War Conference met at the Colonial Office at 10.30 a.m.

PRESENT:

The Right Honourable WALTER H. LONG, M.P., Secretary of State for the Colonies (Chairman of the Conference).

The Right Honourable Sir ALBERT H. STANLEY, M.P., President of the Board of Trade.

The Right Honourable C. ADDISON, M.D., M.P., Minister of Munitions.

Canada.

The Right Honourable Sir R. BORDEN, G.C.M.G., Prime Minister.
The Honourable Sir G. H. PERLEY, K.C.M.G., Minister of Overseas Military Forces.
The Honourable R. ROGERS, Minister of Public Works.
The Honourable J. D. HAZEN, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable Sir JOSEPH WARD, Bart., K.C.M.G., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. SMUTS, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. MORRIS, K.C.M.G., Prime Minister.

India.

The Right Honourable A. CHAMBERLAIN, Secretary of State for India.
Mr. H. C. M. LAMBERT, C.B., Secretary to the Conference.
Mr. E. J. HARDING, Junior Assistant Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. FIDDES, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.
Mr. A. D. STEEL-MAITLAND, M.P., Parliamentary Under Secretary of State for the Colonies.
The Right Honourable Lord ISLINGTON, G.C.M.G., D.S.O., Under Secretary of State for India.
The Right Honourable Sir R. CHALMERS, G.C.B., Permanent Secretary to the Treasury.
Sir L. WORTHINGTON-EVANS, M.P., Parliamntary Secretary, Ministry of Munitions.
Sir H. LLEWELLYN SMITH, K.C.B., Permanent Secretary, Board of Trade.
Brigadier-General F. A. G. WARE, C.M.G., Director of Graves Registration and Enquiries.
Mr. J. S. RISLEY, C.B., Legal Adviser, Colonial Office.

Mr. H. Fountain, C.B., C.M.G., Assistant Secretary, Commercial Department, Board of Trade.
Sir W. H. Clark, K.C.S.I., C.M.G., Comptroller-General of the Commercial Intelligence Department, Board of Trade.
Mr. C. W. Fielding, Chairman of the Metals Economy Committee, Ministry of Munitions.
Mr. P. Ashley, Board of Trade.
Captain J. R. Brooke, R.G.A., War Office.
Lieut.-Colonel W. Dally Jones, Assistant Secretary to the War Cabinet, and
Private Secretaries.

Care of Soldiers' Graves.

Chairman: We begin this morning with the Draft Charter relating to Graves, in which certain changes have been made in order to meet the views of the Conference expressed the other day. Some of the changes are made in order to deal with questions raised by the representatives of India. Then some subsections have been introduced to enable the Commission to acquire and hold sites for the erection of permanent memorials, which may not be placed in actual cemeteries, but on such places as Vimy Ridge, High Wood, or Dedville Wood. The number of members other than official members, which now stands at "six" in Part III, Clause 3, is proposed to be changed to "eight." It is thought expedient to obtain the consent of the Conference for making that number "eight," if necessary, in order to avoid being absolutely bound by the smaller number of "six." Lord Derby, the Secretary of State for War, had intended to be present to-day, but he has been suddenly prevented from coming, and he has asked me to express his very great regret to the Conference that he cannot be here, and to tell the Conference that, had he been here, he proposed to call their attention to what he and his advisers anticipate may happen, namely, that later on there may be a good deal of friction in regard to rival suggestions for monuments and memorials upon either artistic or architectural grounds, and on matters of taste. After a great deal of discussion and consideration Lord Derby proposed to ask the Conference if they would agree that the Director of the National Gallery and the Director of the Royal Botanical Gardens, Kew, should be asked to let us avail ourselves of their services: and it is proposed, if the Conference agree, to nominate them among the eight members. Lord Derby intended to have made that statement himself, and begged me to make it for him, and to say that, if the Conference thought fit to approve, it would be of material advantage to the Commission to have the services of those two gentlemen. They are very well known, I think, throughout the Empire, because whoever fills the office is generally selected on account of his knowledge of art, in one case, and of the best kind of planting and general arrangement of places like cemeteries in the other.

Mr. Hazen: I went over this Charter to some extent with General Ware on Saturday, but these amendments I have seen for the first time this morning. Yesterday I wrote a letter after I left General Ware calling his attention to a change which I thought would have to be made in Part VI. I suggest an amendment there in Clause 1, subsection (1). That clause reads now "To receive all funds which may be granted annually or otherwise by the Legislature of any part of Our Dominions or any of Our Protectorates."

Chairman: Would it not be better to take the amendments as they come and then we shall come to yours in due course?

Mr. Hazen: Perhaps it would be better.

General Ware: The amendments which were made as a result of the instructions given by the last meeting of the Imperial War Conference have been introduced into

the Draft Charter and the revised Draft Charter has been circulated. Those amendments have therefore been seen by all Members of the Conference. There are further amendments which were circulated yesterday or the day before which do not appear in the revised Charter. These amendments were drafted to meet the wishes of the representatives of India, who pointed out that it was essential that the word "Graves" should cover cremation grounds as the great majority of Hindus are cremated after death, and not buried, and the site of the funeral pyre has a sanctity of its own in Hindu sentiment. At the same time these amendments make it possible, as Mr. Long has pointed out, for us to hold or acquire sites not in cemeteries for the erection of permanent memorials. We had in view such places as Mr. Long has mentioned. As far as I can see no question arises on which there is likely to be disagreement with regard to these amendments, as they are perfectly simple and straightforward.

Mr Chamberlain: I do not know whether the Conference would think it necessary to move each of these amendments separately which have already been circulated in typewritten form, or whether the Members of the Conference, for the sake of brevity, would consent to have them moved *en bloc*.

Sir Joseph Ward: Yes, after we have gone through them.

Mr. Hazen: That would save time.

Chairman: The first amendment is in italics in the first introductory paragraph, and I believe nothing arises on that. The next amendment is in italics in the next paragraph, namely, the words, "Belgium, in the Gallipoli Peninsula, in Mesopotamia, in parts of Africa not within Our Dominions, or in any other foreign territory."

Sir Joseph Ward: That meets the point which was raised in the general discussion, and is perfectly satisfactory as far as New Zealand is concerned.

Mr. Hazen: We mention Belgium; why should we not mention France?

Sir Robert Borden: It has been mentioned before.

Mr. Hazen: Yes, that is true.

General Ware: It is settled in France already.

Mr. Hazen: Yes, that is all right.

Chairman: Then in the list of the proposed members, in conformity with the instructions of the last meeting of the Conference, the words in italics are inserted as to the nominees of the Dominion Governments, and the words below naming the High Commissioners are struck out.

Sir Joseph Ward: If you are going to insert the Director of the National Gallery and the Director of the Royal Botanical Gardens, Kew, do you not want to make "five" into "seven"?

General Ware: It is not proposed that they should be "official" members, but that they should be two of the additional six, or eight, members which are referred to later on.

Chairman: Then in Part II there are new words in italics: "In the event of a vacancy in the office of President, from whatever cause arising, such vacancy shall be filled," the words struck out being "On the resignation or death," and so on, because otherwise the wording would be rather blunt. In Part III, Clause 2, the word "persons" is inserted instead of "person"; and the words "Governments of Canada, Australia, New Zealand, South Africa, and" come in. Those alterations are consequential.

Sir Joseph Ward: Do you not require to add "the British Government" as well as "the Governments of Canada, Australia, New Zealand, South Africa and Newfoundland"?

Sir Robert Borden: Their appointments are designated already.

Mr. Chamberlain: They are included in "the persons for the time being holding the offices hereinbefore mentioned."

Mr. HAZEN: Yes, they are set out at the top of the second page.

CHAIRMAN: Then in Part IV, "Organisation," in Clause 2, subsection (2), it is stated that "The Vice-Chairman of the Commission shall be appointed by the Commission"; and in Clause 3, subsection (2), "The Secretary and Assistant Secretaries shall be appointed by the President."

Sir ROBERT BORDEN: There are some persons in the service of the Oversea Dominions who have rendered very effective work in these matters already. What is the proposal with regard to the Assistant Secretaries? This provision directs that they shall be appointed by the President. That means really that they would be appointed by the persons, whoever they may be, who direct the work of the Commission. What is the proposal with regard to their appointment?

General WARE: That has not yet been thoroughly thought out.

Sir ROBERT BORDEN: I direct attention to this in order that it may be taken into consideration. That is my whole object.

CHAIRMAN: Do you object to the words?

Sir ROBERT BORDEN: I have no objection to the words. I merely call attention to the fact that in the Dominions there are certain persons eminently qualified to assist in the work of the Secretariat, and I desire to point out that it would be inadvisable to select the Assistants entirely outside the Dominions.

General WARE: Yes, but by "in the Dominions" you do not mean people who are not actually here at the moment; they might be Canadians who are actually at work in London, I take it?

Sir ROBERT BORDEN: Yes.

Sir JOSEPH WARD: I suppose that applies to all the Dominions?

Sir ROBERT BORDEN: I made it in that sense.

CHAIRMAN: Will you take a note of that; because it is very important?

General WARE: Most important.

CHAIRMAN: Then in Part IV, Clause 5, subsection (3) the word "Official" has been inserted instead of "ex-officio."

Mr. CHAMBERLAIN: And in Part V, Clause 1, subsection (4), in line 2, the word "in" should be "of", and the words run "officers or men of Our said Forces."

Sir JOSEPH WARD: That is quite right.

Mr. CHAMBERLAIN: Then subsection (4), in the same clause, add the following new subsection:—

> "To acquire and hold land for the purpose of providing or erecting permanent memorials elsewhere than in such cemeteries as aforesaid in honour of any officers or men of Our said forces who shall have fallen in the present War."

General WARE: That also covers the Indian question.

CHAIRMAN: Is it your pleasure that those words should be added? (*Agreed.*)

CHAIRMAN: Next, after subsection (8) of Clause 2 of Part V, insert the following:

> "To take such steps as may be necessary under the local law of the territory concerned to enable the Commission to hold any land other than any such cemetery as aforesaid for the purpose of providing or erecting any permanent memorial in honour of officers or men of Our said forces who shall have fallen in the present War."

Mr. CHAMBERLAIN: Yes, and the remaining subsections in this clause are to be renumbered as (10) to (15).

CHAIRMAN: Yes. (*Agreed.*)

CHAIRMAN: After subsection (6) of Clause 3 of Part V, insert at the end the following:—

"In the construction of this part of Our Charter the word 'cemetery' may or shall include a Hindu or other non-Christian cremation ground, and any action which may be taken in regard to a cemetery under the provisions of this Our Charter may be taken in regard to such a cremation ground in so far as may be consistent with Hindu or such other religious customs as may be applicable in the case of any such cremation ground."

Agreed.

CHAIRMAN: Then in Part VI, "Financial," subsection (2) of Clause 1 comes out.

Mr. HAZEN: There is another amendment required there in subsection (1) of paragraph 1 of Part VI. It says:—

"To receive all funds which may be granted annually or otherwise by the Legislature of any part of Our Dominions or any of Our Protectorates."

It does not provide for the reception of any funds which may be granted by the Parliament of Great Britain. I drew an amendment as to that, which I sent to General Ware, and perhaps he might read it.

Mr. CHAMBERLAIN: But when His Majesty speaks of "Our Dominions" it surely includes Great Britain?

Mr. HAZEN: You speak of the Parliament of Great Britain and of the Parliament of Canada.

Sir ROBERT BORDEN: "Legislature" does include Parliament, although "Legislature" is sometimes used in a narrow sense.

Mr. HAZEN: In Canada we speak of the Parliament of Canada and of the Legislatures of the different provinces.

Mr. CHAMBERLAIN: Yes, but I do not think we speak of the Parliament in any Crown Colonies or Protectorates.

Sir ROBERT BORDEN: I think the word "Legislature" is used in two senses. There is the broad sense in which it includes all Parliaments and all legislative bodies, and then there is the minor sense in which it is used sometimes in contra-distinction to Parliament, particularly in our Dominion, where we have the Provincial Legislatures and the Federal Parliament. I think where you use the term "Legislature" in respect of all "Our Dominions" it would probably include the Parliament of the United Kingdom.

Mr. HAZEN: This clause uses the word "Dominions"—"the Legislature of any part of Our Dominions." You do not speak of Great Britain as a Dominion.

CHAIRMAN: It is part of the King's Dominions.

Sir ROBERT BORDEN: The King's Dominions are included.

Mr. HAZEN: And the Protectorates.

General WARE: Would the point be met if the word "Dominions" were changed to "Empire"? That would cover the second part.

CHAIRMAN: "Any part of Our Empire."

Sir JOSEPH WARD: That would do it absolutely.

Mr. HAZEN: Yes.

Sir EDWARD MORRIS: I do not know that there is any legal definition of "Empire."

Sir ROBERT BORDEN: We used it once in a statute in Canada, and I looked up at the time the question whether or not it had any legal meaning. The word "Empire" has no legal meaning at all. It has been used in one statute only in Canada.

Sir EDWARD MORRIS: It is better to keep in the word "Dominions."

CHAIRMAN: You had better keep to the word "Dominions."

Sir ROBERT BORDEN: The use of the word "Dominions" is technically correct.

Sir JOSEPH WARD: The word "Our," of course, means the King.

Sir ROBERT BORDEN: The King is speaking.

Sir GEORGE PERLEY: I would like to see the word "Parliament" put in there. To have the Parliament of the United Kingdom as a Legislature is rather unusual, it seems to me.

Sir ROBERT BORDEN: Why? The term "Legislature" includes in its broad sense all bodies which carry on legislative functions. There is absolutely no doubt about that. It is also used in a narrower sense, particularly in Canada.

General WARE: That was the view of the draftsman, who went into these points very carefully. I am not a lawyer, Sir George Perley. The draftsman advised that it was used in the broadest possible sense on purpose to cover this point.

Sir ROBERT BORDEN: I prefer it as it is.

Mr. HAZEN: The amendment I suggested is something like this: "which may be granted annually or otherwise by the Parliament of Great Britain or the Parliaments and Legislatures of any part of Our Dominions." I must say that "Legislature" is used by us in a more restricted sense than the term "Parliament." I have not heard the Parliament of the United Kingdom termed as a "Legislature," though in the broad sense it may be so.

CHAIRMAN: I think it is rather risky to make these changes. It is really a question of draftsmanship and interpretation. The War Office have had the best advice they can get and I am inclined to leave it to the draftsman.

General WARE: I have carefully noted the views of the Conference, and if it is necessary to make the words clearer it can be done, but is it not a little risky to embark upon drafting ourselves? I cannot express an opinion myself without consulting the draftsman.

Mr. HAZEN: Some of us have had experience of drafting legislation.

CHAIRMAN: Yes, I have drafted a good deal, but the more I have drafted the more wary I have become of interfering with the draftsman.

Sir ROBERT BORDEN: I should like the expression to stand as it is at present. I think the word "Legislature" is broad enough to include the Parliaments and the legislative bodies, whatever they may be; all bodies which exercise the functions of legislation.

Mr. CHAMBERLAIN: I read it, as Sir Robert Borden does, as covering the legislative authority, be it Parliament or be it anything else.

CHAIRMAN: There is no question about the word "Legislature" being quite right as far as New Zealand is concerned. How it applies in Canada is another question.

Sir ROBERT BORDEN: We use the name "Legislature" for the legislative authorities of the various provinces as distinguished from the term "Parliament," which is restricted there to the federal legislative authority; but that is only a minor use of the term and it would not affect this draft.

CHAIRMAN: I should think, as this is all on record, as it will be now, it might be left at that.

Mr. HAZEN: Yes.

CHAIRMAN: Then subsection (2) of Clause 1 of Part VI goes out, subsection (3) is amended as shown in the revised draft charter, and the remaining subsections of Clause 1 of Part VI, are renumbered. Then in Part VIII, Clause 3, the words shown in italics in the revised draft charter are inserted and the other words go out; in line 6, however, the word "Dominions" should be "Empire"—"such parts of Our Empire."

Mr. HAZEN: Why is the word "Empire" used there? Why do you prefer that there if you think it should not be the word before?

CHAIRMAN: We never use the word "Empire" here. We talk about "Our Dominions" to cover everything.

General WARE: "Dominions" does not cover Protectorates; that is the technical difficulty.

Sir ROBERT BORDEN: Then why not use the same word in that clause as in subsection (1) of clause 1 of Part VI?

Mr. CHAMBERLAIN: I think "any part of our Dominions" is quite sufficient. The self-governing Dominions are, of course, the Dominions represented by the gentlemen who are here; but the King's Dominions are all the territory over which he hold sway, surely.

Mr. HAZEN: If it is not right here, it is not right in the other place which we have just been discussing. I always understood that "Dominions" had reference to the Dominions overseas as distinguished from Great Britain and Ireland.

Mr. ROGERS: Why not say "parts of Our Dominions and any of Our Protectorates"?

Mr. CHAMBERLAIN: I suspect the alteration may have been made in order to cover the case of India, which is not habitually described as a "Dominion."

General WARE: Partly.

Mr. CHAMBERLAND: But it is part of His Majesty's Dominions, and if that be true of India it is equally true surely of the other non-self-governing parts of the Empire which, although they may not be Dominions by themselves, are part of His Majesty's Dominions, and His Majesty may properly speak of them as "Our Dominions."

Sir ROBERT BORDEN: Why not say, as before, "such parts of Our Dominions or Protectorates as are represented on the Commission"?

General WARE: Then comes the question as to whether the Protectorates are represented.

Sir ROBERT BORDEN: It does not follow that they are; the phrase is "as are represented on the Commission or have made grants."

Mr. HAZEN: But the Protectorates are not represented on the Commission.

Sir ROBERT BORDEN: I understand that, perfectly.

Mr. HAZEN: Why not say "such parts as are not represented"?

Sir ROBERT BORDEN: It is in the disjunctive—"such parts of Our Dominions or Protectorates as are represented on the Commission or have made grants."

Sir JOSEPH WARD: Is not the point that they want to have the Protectorates provided for though they are not represented at all?

Sir ROBERT BORDEN: This does provide for it.

Sir JOSEPH WARD: If you say "such Protectorates as are represented," you may exclude others that are not.

Sir ROBERT BORDEN: "Or have made grants." It is disjunctive. If they come within any of the conditions they are entitled to a copy of the report.

CHAIRMAN: I would respectfully suggest that we need not discuss this because the only real question concerned is the transmission of copies. The Secretary of State represents the Crown Colonies, and he has only to ask for as many copies as he requires and he will get them and can send them wherever he thinks necessary.

Sir JOSEPH WARD: The point is not material.

Mr. CHAMBERLAIN: I think the wording ought to follow the same language, if I may say so, as in subsection 1 of Clause 1 of Part VI, which we were discussing just now.

CHAIRMAN: Yes, the Dominions and Protectorates.

Sir ROBERT BORDEN: "Or Protectorates" you must say.

General WARE: May I take it that it is an instruction that the draftsman make an alteration so that these two clauses agree?

Mr. HAZEN: I would like to move this Resolution:

> "That words be added to the Charter to this effect: That the Imperial War Graves Commission be requested as soon as possible after their appointment and organization to prepare an estimate of the probable cost of carrying on the work entrusted to them and to submit the same to the Governments of the United Kingdom and Oversea Dominions with their recommendation as to the proportion that should be borne by each."

CHAIRMAN: Mr. Hazen moves that Resolution.

Sir JOSEPH WARD: Do you desire that it should be included in the Charter, Mr. Hazen?

Mr. HAZEN: That was my suggestion.

Sir JOSEPH WARD: If so, it ought not to be a request.

Mr. HAZEN: It should be "directed" instead of "requested."

Sir ROBERT BORDEN: Would it not be better not to put the words in the Charter but simply to pass a Resolution which would be observed by those responsible for the carrying out of the Trust? They seem to me rather inappropriate for the Charter. I think it is a most necessary provision and I am entirely in accord with it, but the question is whether it is appropriate to be inserted in the Charter or whether it should be recorded as a Resolution of this Conference. Personally it seems to me that the latter course would be the better.

Mr. HAZEN: Well, it could be done in that way. Leave out the words "That words be added to the Charter" and put "Resolved that the Imperial War Graves Commission be requested as soon as possible."

CHAIRMAN: It ought to be a Resolution of the Conference.

Mr. HAZEN: Yes.

CHAIRMAN: Then you want to strike out the words "That words be added to the Charter to this effect."

Mr. HAZEN: Yes; as follows:—

> "That the Imperial War Graves Commission be requested, as soon as possible after their appointment and organization, to prepare an estimate of the probable cost of carrying on the work entrusted to them, and to submit the same to the Governments of the United Kingdom and Oversea Dominions with their recommendation as to the proportion that should be borne by each."

Mr. HAZEN: Yes.

(Agreed.)

General WARE: In Part III., Clause 3, Lord Derby suggests that we should not be bound by the number "six." If it is necessary to fix a number, we suggest that that number should be eight. I take it that was also the opinion expressed at the last meeting of the Conference.

Sir JOSEPH WARD: Does that mean that if the Director of the National Gallery and the Director of the Royal Botanical Gardens, Kew, are included it would be eight still?

General WARE: Yes.

Sir JOSEPH WARD: You want to limit it to that?

General WARE: No, we do not want to limit it; we want it to be as the Conference suggests.

CHAIRMAN: Why fix any number at all?

Sir ROBERT BORDEN: Will the General be good enough to tell us the precise constitution of the Commission as it stands at present? There are four from the United Kingdom, and they are designated here as persons holding official positions. Then there are five persons from the Oversea Dominions who are to be appointed by their Governments—that is nine. Then you propose by Clause 3 of Part III. to appoint six others. You have mentioned two who will probably be selected, the Director of the National Gallery and the Director of Kew Gardens.

General WARE: Yes. Then it was suggested by the Prince of Wales's Minute that among the unofficial members there should be "the present Director of Graves Registration and Inquiries, and the two Officers Commanding the Graves Registration Units in France and in the East respectively." That makes three more.

Sir ROBERT BORDEN: That makes five in all.

General WARE: And, as the wording stands now, only one appointment is left. We want a little more freedom. There is a question whether there should be a Naval representative. We are also very anxious that General Macready personally should be nominated to this Commission.

Sir ROBERT BORDEN: To what extent do you desire to increase the number?

General WARE: Eight would cover it.

Mr. HAZEN: Do not get your Commission too large and unwieldy.

Sir ROBERT BORDEN: I suppose the management will be carried on by a few persons in the final result.

Mr. HAZEN: That is always the way.

Sir JOSEPH WARD: Is it contemplated, for instance, that a position may arise that a number of Italians are buried in the cemeteries which are covered by this Charter, and that Italy may desire to have a representative?

General WARE: Those questions we should meet by Advisory Committees or Agencies. These are provided for in Part IV.

Sir ROBERT BORDEN: You are not giving the Commission an International character in any respect?

General WARE: No, except by arrangements with the Foreign Governments under Part IV.

Sir ROBERT BORDEN: Personally I have no objection to increasing the number to eight.

Mr. CHAMBERLAIN: Sir Robert Borden has mentioned four representatives of the Home Government. I would like to say that the Secretary of State for India will sit on this Commission, not as a representative of the Home Government, but as the representative of special Indian interests.

Sir ROBERT BORDEN: Yes.

CHAIRMAN: And the Secretary of State for the Colonies will sit as special representative of the Crown Colonies, because the Dominions are all represented themselves.

Sir ROBERT BORDEN: I was not criticising.

Mr. CHAMBERLAIN: I only made my observation in order to make my position clear with regard to India.

CHAIRMAN: I take it that the suggestion to increase the number to eight is agreed. (*Agreed.*) May I take it that the Conference accepts Lord Derby's definite suggestion as to the Director of the National Gallery and the Director of Kew Gardens?

Sir JOSEPH WARD: I think the idea is an excellent one.

Sir GEORGE PERLEY: Do you mean to mention them in the Charter by title?

CHAIRMAN: No. Lord Derby was very anxious to have your views whether you approved of the selection of those two particular officials.

Mr. ROGERS: Do they form part of the Commission?

CHAIRMAN: Yes.

Sir JOSEPH WARD: From an artistic and architectural point of view I think it is advisable to have them included.

CHAIRMAN: I think it is advisable.

General WARE: I should like to add that I think, if only from the point of view of the work which the Director of Kew Gardens has already done, it is important that he should form one of the Commission. The Assistant Director has been actually working in France and has been of invaluable assistance to us. He knows the whole work from the horticultural point of view and has been in communication with the oversea authorities on the question.

CHAIRMAN: May I take it that the Conference approve the Draft Charter as amended?*

(*Agreed.*)

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THIRTEENTH DAY.

Wednesday, 25th April, 1917.

THE IMPERIAL WAR CONFERENCE MET AT THE COLONIAL OFFICE AT 10.30 A.M.

PRESENT:

The Right Honourable WALTER H. LONG, M.P., Secretary of State for the Colonies (Chairman of the Conference).

The Right Honourable Sir ALBERT H. STANLEY, M.P., President of the Board of Trade.

Canada.

The Right Honourable Sir R. BORDEN, G.C.M.G., Prime Minister.
The Honourable Sir G. H. PERLEY, K.C.M.G., Minister of Overseas Military Forces.
The Honourable R. ROGERS, Minister of Public Works.
The Honourable J. D. HAZEN, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. MASSEY, Prime Minister.
The Right Honourable Sir JOSEPH WARD, Bart, K.C.M.G., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. SMUTS, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. MORRIS, K.C.M.G., Prime Minister.

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* The Draft Charter as further revised is printed on pp. 153-156.

India.

The Right Honourable A. Chamberlain, Secretary of State for India.
Sir J. S. Meston, K.C.S.I., Lieutenant-Governor of the United Provinces.
Colonel His Highness the Maharaja of Bikaner, G.C.S.I., G.C.I.E., A.D.C.
Sir S. P. Sinha, Member Designate of the Executive Council of the Governor of Bengal.
Mr. H. C. M. Lambert, C.B., Secretary to the Conference.
Mr. E. J. Harding, Junior Assistant Secretary to the Conference.

There Were also Present:

Sir G. V. Fiddes, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.
Mr. A. D. Steel-Maitland, M.P., Parliamentary Under Secretary of State for the Colonies.
The Right Honourable Sir R. Chalmers, G.C.B., Permanent Secretary to the Treasury.
The Right Honourable Sir Maurice de Bunsen, G.C.M.G., G.C.V.O., C.B., Acting Assistant Under Secretary of State for Foreign Affairs.
Sir H. Llewellyn Smith, K.C.B., Permanent Secretary, Board of Trade.
Sir E. Nott-Bower, K.C.B., Chairman, Board of Inland Revenue.
Mr. Garnham Roper, C.B., Assistant Secretary, Harbour Department, Board of Trade.
Mr. H. Fountain, C.B., C.M.G., Assistant Secretary, Commercial Department, Board of Trade.
Sir W. H. Clark, K.C.S.I., C.M.G., Comptroller General of the Commercial Intelligence Department, Board of Trade.
Mr. N. F. Warren Fisher, C.B., Deputy Chairman, Board of Inland Revenue.
Mr. U. F. Wintour, C.B., Director of Contracts, War Office.
Mr. Percy Ashley, Board of Trade.
Lieutenant-Colonel W. Dally Jones, Assistant Secretary to the War Cabinet.
and
Private Secretaries.

Double Income Tax.

Chairman: An amended Resolution on the subject of Double Income Tax, handed in by Sir Robert Chalmers on behalf of the Chancellor of the Exchequer, was circulated last night to Members of the Conference. The Chancellor of the Exchequer desires me to say that he had hoped to be present himself, but in the special circumstances, I am sure Members of the Conference will appreciate the reasons for his absence, and will feel that Sir Robert Chalmers can very properly take his place. The Resolution runs: "That the present system of Double Income Taxation within the Empire calls for review in relation—

(i) to firms in the United Kingdom doing business with the Oversea Dominions, India, and the Colonies;

(ii) to private individuals resident in the United Kingdom who have capital invested elsewhere in the Empire; and

(iii) to its influence on the investment of capital in the United Kingdom, the Dominions, and India, and to the effect of any change on the position of British capital invested abroad.

The Conference therefore urges that this matter may be taken in hand as soon as financial conditions permit, and that an amendment of the law may be made which will remedy the present unsatisfactory position."

I understand that Mr. Massey is willing to adopt that resolution and to propose it, in which case Sir Robert Chalmers would second it. As we have the advantage of the presence of an ex-Chancellor of the Exchequer in the person of the Secretary of State for India, I do not know whether he will be prepared to say anything to the Conference before we adopt the Resolution.

Mr. CHAMBERLAIN: I do not think it necessary for me to do so, thank you, Mr. Chairman.

CHAIRMAN: Then may that Resolution be adopted?

Mr. ROGERS: No; I think there is something to be said about it

Mr. MASSEY: Yes, I want to say a word and, in supporting the Motion, I would just like to endorse what has been said by Mr. Long about Mr. Bonar Law's inability to be present. I am sure each and every one of us regrets his absence and sincerely sympathises with him in the intense anxiety which he must be feeling on account of his soldier son. I do not need to say any more, except that I only hope better news will arrive in a few days, so that the anxiety of the father and other members of the family may be set at rest.

With regard to this Motion, which has been circulated to the Conference by the Department, I would just like to say that it is not so emphatic in the preamble as my own Motion was, but I think in the Motion proper it is in some respects an improvement on mine, and is certainly more comprehensive, so that I have no objection to it on that score, and it is an admission on the part of the Department, that the present system is not satisfactory and that some amendment is necessary. I am sure the Members of the Conference will agree with me in this, that the necessary amendment should be made as soon as possible, either by legislation or otherwise.

I referred to this subject on its introduction a few days ago, and I do not need to labour it at any very great length, but I would just like to point out where its unfairness has been brought home, especially I think to my colleague from New Zealand and myself. In the case of widows—and unfortunately a number of these ladies have been made widows during the present War—they have come to England to live, partly, perhaps, because they wanted to live near some of their relatives, and sometimes for other reasons, but they are here in England (I am speaking now of those with whom I am acquainted and those with whom I have had correspondence on this subject) and they will probably live here for the remainder of their days, but their properties are in New Zealand, and their incomes are derived from New Zealand. In the meantime they are taxed for Income Tax purposes in New Zealand, and our Income Tax is very heavy, though not quite so heavy as the British Income Tax, but it is next to that so far as the Empire is concerned. They are taxed, as I say, in New Zealand on their income, and, because they live here, they are also taxed here, and this double taxation makes, under existing circumstances, a very serious inroad upon their incomes. That is one of the grievances.

Another grievance is with regard to the position of business men. There are numbers of British firms who do business in New Zealand, and these firms pay Income Tax in their own country, that is, in Britain, and they again have to pay an Income Tax which we expect them to pay on the profits of their business in New Zealand. I think the same reasons apply to Australia and Canada, though not exactly to the same extent; I am not quite sure about South Africa I know the Canadian people in their taxation upon incomes do not go so far as we do; they will probably require a heavier tax to assist them in carrying the burdens arising out of the present War. There is the position in regard to business men who naturally endeavour to make increased profits, or to provide for increased profits, on account of the double tax, and on account of the inequitable system of taxation, as we think it, to which they are subjected.

Then my attention has been called to this state of things which is going on. I happen to know most of the British firms doing business with New Zealand in the meat trade. It has been my business to deal officially with those people over the period of the War. I know of one very large British firm which has extensive connections in the meat-producing countries, I think I may say particularly in New Zealand. That firm has certainly a very large sum of money invested in New Zealand, and it has been extending its business just recently in the Dominion very considerably. We ask them to pay income tax on the profits they make, and no objection can be taken to that, because the principle stands that it is fair to tax income in the country where it is made; but these people have their headquarters in Great Britain at the present time. First of all they pay income tax to our Finance Minister. Our Finance Minister is here, and he will endorse, I am sure, the opinion I am expressing when I tell the Members of this Conference that it is a very heavy tax—we both pay it, and we know—and it is a graduated tax, so that the higher the income the more a man pays. I am not speaking of the Excess Profits Tax now particularly, because I will deal with that in a moment, but I am speaking of the ordinary Income Tax, which is on a very high scale for war purposes. This firm is taxed here again. Then there is the Excess Profits Tax. Many people desire to make more money during the war period on account of increased taxation. I am not speaking of the ordinary meat salesman at Smithfield, because he has not been making more but has really not been making as much. The men in the meat trade itself are those who have undoubtedly been making larger incomes. We come along and tax them to the extent of forty-five per cent on their excess profits. According to the new arrangement which has been made in Britain, they will be taxed to the extent of fifty-five per cent; I think I am right in saying so; so that the two taxes will not amount to more than the profit actually made by way of excess. Very well; taking these people as an illustration—I do not know that I ought to mention the name of the firm, although I do not think they would object to it if I did mention it—they have to meet the competition of the great American Meat Trusts, possessing immense capital and who are to-day in a wonderfully strong position. Up to the present the American Meat Trusts do not pay Income Tax in our country; possibly we shall ask them and compel them to do so presently; but they do not pay tax on income in England as British firms pay, and yet their meat is being sold in England, and they are doing an immense business with the British Government at the present time. I do not know what the position is in the Argentine, but I know perfectly well there is no war taxation in the Argentine, from which country they buy a very large proportion of their meat, and therefore they are placed at a tremendous advantage as compared with the firm of which I am speaking, or other firms similarly placed. Now the effect of that is going to be—and I think in some cases the effect has been—that these firms, British firms as they are, and as I believe they would like to remain, cannot stand up against this sort of thing and are thinking of shifting. I know a member of the firm is at present in the United States, perhaps making arrangements, or at any rate making enquiries, with a view to shifting the headquarters of this firm to that country and so escaping the enormous burden of taxation they are called upon to carry. I am quite sure there is no one in Britain who desire to bring that state of things about. In New Zealand we want to encourage business as much as we possibly can, and we mean to do it, not only as citizens of the Empire, but as men connected with the government of the country and as men connected to a certain extent with Imperial matters. We want to encourage business within the Empire as much as we can, and I do not think there is anything wrong in my saying so.

Then there is another point of view, and I have mentioned this point previously, and to my mind it is the strongest point of all, and appeals particularly, I think, to every Dominion of the Empire, because we are all in the development stage; we are developing as rapidly as we can, and we are taking upon ourselves burdens in the shape of interest upon borrowed capital as fast as we consider it safe to do so. We

are encouraging the introduction of capital, each and every one of us, into our Dominions, because we know it will be well and properly expended, and will assist in the development of the country, and tend towards the prosperity of the people living there already, or those who may come there in the future. Now if people who are fortunate enough to be possessed of capital which in the past has been invested in the Dominions, or may, in the future, be invested in the Dominions, unless their investments are handicapped very seriously, if they know what they will be called upon to continue to pay this very heavy taxation not only here, where the headquarters may be, but also in the Dominions, where their capital is invested, they are not going to the Dominions with their capital; or, if they do, it will be in cases where they are able to insist on a very high rate of interest, so that they may be in a position to pay the taxes in both countries. In any case, the Dominions are going to suffer; all investments in the Dominions will be discouraged by the present system for that reason; and for another reason which I will mention, I think the system should be amended as soon as it is possible to do so. Sir Joseph Ward mentioned the other day that in New Zealand we have provided against this sort of thing as far as we possibly can, that is to say, in New Zealand, where a resident arrives from some other country within the British Dominions, and where he is taxed in that country upon his income, we make a rebate in our income tax to the extent to which he has to pay income tax in that other country. The provision in our Income Tax Act is: "Income derived by a person resident in 'New Zealand, but not derived from New Zealand, shall be exempt from Income Tax "if and so far as the Commissioner is satisfied that it is derived from some other "country within the British Dominions,* and that it is chargeable with Income Tax in that country." That is satisfactory so far as it goes, but unfortunately it does not go very far, because it does not affect matters at this end. There is our position, and I know the position of the Chancellor of the Exchequer of this country perfectly well; I know the difficulty he will have in meeting the very heavy expenditure that is going on, and that the present position will last for some time after the War. I do not think we ought to shut our eyes to that fact. The taxation that is being collected will be a gradually decreasing quantity, I hope and believe, and I think we are well able to pay it; but I think we should always go on the principle that each citizen of the Empire or of the State, as the case may be, should contribute to the taxation necessary in proportion to his ability to pay. Nobody objects to that, but I do say that this Double Income Tax has had the effect of calling upon many people—many worthy citizens of the Empire and of the Dominions—to pay far more than in fairness they should be asked to contribute.

That is all I have to say, Mr. Long, and I do not think we should take up a great deal of time in arriving at a conclusion with regard to this, to us, very important matter.

Mr. ROGERS: I would like to say a word or two on this point. First of all, let me associate myself with what Mr. Massey has said with respect to the feelings of sympathy for the cause which prevents Mr. Bonar Law being present here to give us the benefit of his judgment on this important matter.

Now, Mr. Long, we of course appreciate that this amended Resolution presents the matter in a somewhat different light to that in which it was presented to us by the representative of the Treasury the other day; at all events it goes the length of admitting that our position, in so far as income tax is concerned, is unsatisfactory. But beyond that I do not know that it holds out very much hope for a readjustment of the conditions, which are so unsatisfactory, of the Oversea Dominions, because all that is promised is that, as soon as financial conditions will permit, some further amendment may be taken. Now this may be many years in the future, and it is a very indefinite proposal, while in the meantime we are expected in the Oversea

* *See* Memorandum printed on pp. 167-168.

Dominions to go on and suffer from what we regard as a very serious grievance in the matter of this Double Income Tax. Take our position in Canada. We have several large companies there that pay heavily in income tax where they have no capital invested at all. Let me take as an example the Hudson's Bay Company. They have no British capital invested, but they take large sums of money every year out of the natural resources of the Dominion of Canada on which an income tax is exacted by the Treasury of Great Britain, which we regard as a tax which should properly belong to the Dominion of Canada. The same applies, in a rather different form perhaps, in connection with the Grand Trunk Railway, a system which we have largely to assist from time to time, and have done so during the last forty years, while, as I understand it, an income tax is collected from that system as well. The same applies to the Bank of British North America and various other things.

Now I understand that last year and the year before—perhaps Sir Robert Chalmers will correct me if I am wrong—there was some legislation in respect of Double Income Tax.

Sir ROBERT CHALMERS: It was last year.

Mr. ROGERS: Will you say just what the nature of that was?

Mr. MASSEY: There was a small concession made; I forgot to mention that.

Sir ROBERT CHALMERS: There was a deduction of 1*s.* 6*d.* in the pound under certain circumstances to come off the incomes which were suffering double taxation.

CHAIRMAN: It is set out in a footnote to the Memorandum by the Board of Inland Revenue which has been circulated.*

Mr. ROGERS: I understood you, Sir Robert, the other day to tell us that the Income Tax represented something like forty million pounds to your Treasury.

Sir ROBERT CHALMERS: I do not think I mentioned any figure.

Mr. ROGERS: Somebody mentioned it here.

Sir ROBERT CHALMERS: I heard figures being mentioned privately afterwards, but I certainly made no mention of a figure myself.

Mr. ROGERS: Could you give us any idea of the amount of the Income Tax?

Sir ROBERT CHALMERS: I do not think I could.

Mr. ROGERS: I mean the Income Tax collected from the Oversea Dominions.

Mr. MASSEY: That would be a very important point.

Sir ROBERT CHALMERS: I could not in the sense in which I take you to refer to the matter, that is, where Double Income Tax is concerned. I do not think I could give the information; I have consulted the Inland Revenue, and they could not give a figure which would be any help to the Conference. It would be a large sum.

Mr. ROGERS: You admitted by your Act of Parliament that an injustice was being done, and you undertook to correct it in a way we might accept to some extent, and now you come forward with your resolution and admit that the position is still unsatisfactory. Would it not be fair on your part, until this matter can be adjusted in some form as soon as financial conditions will permit, to allow, for the remainder of the period until that time is reached, the amount of Double Income Tax that is collected on such incomes as those to go to the Oversea Dominions until an adjustment can properly take place? Would not that be fair?

Sir ROBERT CHALMERS: I am not in a position to do more than say that the concession of 1916 would be continued, but I cannot say that it would be extended, which is the substance of your suggestion.

Mr. ROGERS: That is the point I think we should press, because, in view of the acknowledged unsatisfactory position and the fact that you have had the benefit of this Double Income Tax for such a period of time, surely it would be only fair that

* *See* Memorandum printed on pp. 167-168.

we should get the whole returned until such time as the financial conditions will admit of a settlement of that question.

Sir Robert Chalmers: I am not in a position as representing the Chancellor of the Exchequer here to go further than to the extent to which he is prepared to go, which is in the form of the Resolution.

Mr. Rogers: Then the Resolution, as far as I am concerned, would not be at all satisfactory; it really means nothing.

Sir Robert Chalmers: I am the more sorry to hear that, as it represents in its operative form of words of Mr. Massey, which I have adopted on behalf of the Chancellor of the Exchequer.

Mr. Rogers: I must admit it goes the length of admitting that the position is unsatisfactory, and that as soon as financial conditions will permit a change will be made, but there is no limit on that condition, and I think it is only fair that we should be entitled to the Double Income Tax from now until such time as a satisfactory arrangement can be reached under the financial conditions. Your Treasury has had the benefit to the detriment of our Treasury for many years, according to our idea, and therefore you could make the time as short as you like by arriving at a conclusion as to when the financial conditions will admit of having that general adjustment. Until such time arrives I think we can fairly claim that we are entitled to the full Income Tax that originate within the borders of the various Dominions, and for that reason I would not be disposed to accept this amendment.

Sir Joseph Ward: Mr. Long, I would like in the first place to add a word of deep regret at the cause of the absence of Mr. Bonar Law, and my earnest sympathy for him in his domestic trial.

Double Income Tax is a sore subject with the people in New Zealand, and I have very little doubt it is the same in the other Dominions, and it calls for some effort on the part of the representatives who are here to bring home to the British Government and those authorities who advise them the supreme importance from an Empire standpoint of having an alteration made as soon as possible. When the War is over I do not think it is disputable that as a result of the enormous exportation of meat for war purposes, a large portion of which has been bought by the British Government for the French Government, there will be a direct trade between France and New Zealand, Australia, and Canada in meat and in wool, which is going to pass by the centre of the Empire, London, or any other port in this country; and the Home authorities will lose whatever proportion of that meat or wool—which, by those best qualified to judge, is considered will be enormous in its quantities—which will go past the British Isles directly to any of our Allies whose people have been educated to use these articles during the War. From the point of view of the exporters in New Zealand that will be very valuable, and it ought not to be forgotten that none of these countries exports to Great Britain manufactured articles and only those from the products of the soil. This country is certain to lose for a time, in my opinion, excepting upon superior competitive conditions (that is by a higher price being paid here) a considerable proportion of the exports which went from our country to this country prior to the War. Those people who are being mulcted in Double Income Tax, if they can legitimately evade it will do so as certain as we are sitting at this Conference. This is a vital matter to the ordinary business man in our country, and to the ordinary professional man in our country who may from time to time visit the old land and stay here for a period which causes him to be called upon to pay Double Income Tax here, and they are going to do all in their power which they legitimately can do to avoid it. I am quite persuaded of that. On the other hand, when this War is over there is going to be an active competition for expansion in trade with the Oversea Dominions by some of our Allies, and probably by those who are at present enemy countries.

Now, what is the position of a man who is trading from one of those foreign countries with a New Zealander by comparison with the man who is trading from London to New Zealand or to any other Oversea Dominion? Let me take as a typical case one of the enemy countries, Germany. Supposing it gets trade into our country through a British house, not through a German house, because our countries are standing up against that, and it is yet to be discovered how you are going to prevent them trading with a British house. That firm from Germany does not pay any Double Income Tax and is going to remain in a position advantageous to those British traders from this country, who will be under adverse conditions carrying on their trade with the oversea countries. Apart altogether from the necessities of the policy of the Treasury of this country, is it a fair proposition for the people who are working in the direction of consolidating the trade within the Empire and bringing a better condition of things into existence in order to prevent our enemies from getting up alongside of our people after the War, that we should in our respective callings, and in various parts of the Empire, go on promulgating proposals and endeavouring to put them into effect with the object of assisting trade, if at the very heart of the British Empire itself, a condition is going to exist that is not only a detriment to the traders within the Empire, but is going to drive some of them outside of the Empire for the purposes of carrying on their trade? As a matter of fact, we are very much concerned in New Zealand over the American Meat Trusts' operations there. Those of us who find it necessary to study the situation believe it is only a matter of time unless some methods can be devised——

CHAIRMAN: If you will forgive me interrupting you there, I do not know whether it would be convenient for you to reserve that point until the Board of Trade come; they thought that was going to be raised on the next resolution, when they are coming.

Sir JOSEPH WARD: Very well.

CHAIRMAN: There is also the question you raised the other day about the supertax which you propose in New Zealand under your Act of Parliament.

Sir JOSEPH WARD: Then I will not refer to either now.

CHAIRMAN: They are coming here prepared to deal with both those questions.

Sir JOSEPH WARD: Very well, I will not take up the time of the Conference now on that matter. We have to fight the battle in our own country, and do all we can to try to meet what I believe is going to be a great deflection of trade. I know at the moment, and I think it is known to the authorities here, that there has been a movement of men in this country to avoid this Double Income Tax by changing their whole business out of this country to the United States of America and to other countries. That is a very serious thing, and one of the concerns with a million or two millions of capital—I do not know the exact amount, but they are enormous traders—

Mr. MASSEY: Four millions.

Sir JOSEPH WARD: If the information which I have is correct, and I believe it to be correct, negotiations have been going on for some time, and I was told only a few days ago that the negotiations would be successfully completed for the disposal of their whole concern to a large organization in the United States of America. What does that mean? and that is only the beginning of what is going to be an active movement. It means that this country is going to lose practically the whole of the income taxation on that firm's operations, excepting such portion of it as they may continue to do in England under the new firm. If, among other things, they send a large portion of their products to France or to Italy or to any of the

Continental countries, then this country is going to suffer a further heavy loss through the Income Tax charged on the profits being unavailable here. The whole matter is a serious one.

The representative of one of the largest institutions in Australia saw me within the last couple of months and told me that he was seriously considering the desirability of changing his head office from Australia to the United States of America. I know they are very large income tax payers here and in Australia. They are deeply concerned as to the probable necessity for their doing so. It is not entirely owing to the system which existed in England that they are being impelled to consider the necessity of transferring their business to the United States of America, but it is because of the fact that they suffer from a system of taxation in the State of Australia in which they have their head office and in turn come, at least partly, under the Commonwealth system of taxation too. They are getting it three times over. Where they pay Double Income Tax, as a British trading concern, they get one extra dose here, one in one of the States of Australia, and a third in the Commonwealth of Australia. This man has been trading in this country, and his father before him, possibly for the last fifty or sixty years; he is a Britisher, and his attachment to the Empire is beyond all question, but he pointed out to me that his business is not in existence for the purpose of paying away a larger amount of taxation than anyone can afford to pay, and that his business will not be worth carrying on if he is to continue to pay three income taxes because of the existence of this Double Income Tax which exists within the British Empire, and the fact that he has to pay a portion of taxation in the Commonwealth of Australia. The latter is not the fault of the British authorities here, but the fact remains that if a man has a certain amount of capital invested in his business and he is going to get a less net return upon it from trading than if he sold his business and got out of it and put his money into something else, he will not go on carrying on his business; but his business is too important for him to willingly give it up, and that man, I know, is seriously contemplating transferring the whole of his head office to a country he does not want to go. These men are not doing it for the fun of the thing; they are not moving in this direction with a view to bring pressure to bear upon any of the Governments to make a change, but they are doing it out of sheer necessity. "Necessity knows no law," and necessity will impel a number of other people, in my opinion, to do exactly the same sort of thing, in order to get into a position of paying lower taxation upon the amount of income derived from the business they are doing in any portion of the British Empire.

As I say, this matter is a very serious one, and it is not going to stop at the end of the war, and it is causing everlasting friction in all of the Oversea Dominions. One does not want to put his oar into the boat of the British Chancellor of the Exchequer in connection with financial operations, but I am persuaded that this is going to do this country an immense amount of harm, and it is going to do the Oversea Dominions an immense amount of harm, and it will be taken advantage of by our enemies after the War is over; they will be trading under superior conditions, probably coming in, as they did before, with enormous subventions for their steamers, so as to get an advantage over the British trader, and their goods will be carried at lower rates, as was the case in the past, and the tremendous subventions for their steamers will help them to beat if they do not wipe out the British steamers in the way of competition. They did not succeed before, it is true, very far from it, but with the added difficulties we are all going to have from war taxation imposed upon our people arising from the necessities of the War, we are all going to have higher income taxes levied than we had in pre-war times, and when it comes to the question of one man or firm or private individual finding this system of double taxation is going to be continued, it will strain their loyalty to such an extent that the head office of many of these concerns will be removed to some other country to a very great extent indeed.

While I am upon this, I want to say a word with regard to the difficulty, for war taxation purposes, of that Excess Profits Tax to which Mr. Massey referred. In our country we take forty-five per cent; here you take sixty per cent. In our country I had a clause put into the Statute giving us power to reciprocate with the Chancellor of the Exchequer here so as to have, if possible, a lower basis from the two amounts than the forty-five and the sixty per cent, with a view to having a reasonable proportion of double taxation levied upon those who come under it. There are not a great many people who do come under it, but those who do come under the proposal as it is now find it ruinous to them, and I am bound to say that the heads of the Revenue Department here who discussed the matter with Mr. Massey and myself met us quite fairly as to how a change which I submitted to them could be made. I understand that it cannot be done without legislation here, and I also understand that there is to be legislation to meet this system of charging which this unfortunate war has compelled the whole of us in our separate countries to put into operation.

When I came to England some years ago as Colonial Treasurer of New Zealand one of the duties imposed upon me was to ask the British Government to do away with double income tax. I saw the then Chancellor of the Exchequer and made strong representations to him, and, after going into it, he expressed the opinion to me that this country could not sustain the loss which would be imposed by abolishing it. It was not so acute then as it is now. Later on I went to another Chancellor of the Exchequer and I pointed out to him the continuance of the friction from the period when I had originally gone to the Chancellor of the Exchequer to urge upon him the necessity for it being altered, and after going into the matter on that occasion the Chancellor of the Exchequer (the present Prime Minister) gave a similar answer to that given to me by his predecessor. In the interval that has elapsed this war has changed the whole conditions of obtaining money to keep up our end in the Oversea Dominion; it has certainly accentuated the injustice of this Double Income Tax out of all proportion to what that accentuation had reached on either of the earlier occasions when I made representations about it. There is not a business firm from end to end of New Zealand at this moment—there is not a public man from end to end of New Zealand at this moment—who is not steeped up to his eyes in a feeling brought about by representations made to him that this taxation is injurious to our Dominion, and consequently bound to be injurious to each of the other Dominions as well as to the Motherland, and that it is going to militate against the free intercourse of trade and the development that we are all anxious in every way in our power to assist in promoting. I recognise fully, and I have said it before, that at this juncture no one with the responsibility on his shoulders of a Chancellor of the Exchequer would be safe in conceding during the War period what ought to be done as soon after the War as possible, because we recognise, where these thousands of millions of money have to be raised, that it is vital to the Empire as a whole that there should be no interference or anything which would tell against the work of the Chancellor of the Exchequer and the Treasury here in raising the required money to enable the War to be won. I do want, however, to reaffirm my earnest hope and my profound conviction that this matter must be taken in hand immediately after the War has been concluded, and a change of policy effected here to raise an equivalent amount of money, whatever that amount may be, from some other source.

Sir GEORGE PERLEY: I would just like to say that it seems to me there cannot be two opinions on the general question involved in this discussion. I think it is manifestly unfair and unwise that there should be a Double Income Tax within the British Empire. The result of it must be eventually to prevent anyone from making investments in any country except the one he lives in. I take it that under the present arrangement you practically say to an investor from the Dominions, "You "must not come here and invest any money in England, you must not buy stocks or

"shares in England, because, if you do, you will have to pay Double Income Tax." I think as a matter of fact, instead of making our Empire one, nothing could serve better to divide us up and separate us than to have a law which forces us to invest in the country we reside in. We, in the Dominions, of course need the capital, and we therefore suffer from this Double Income Tax more than those who are living in this country. I would like to see this Resolution made in more general terms. We are at the present time the one who are suffering chiefly from this Double Income Tax, because we want capital for our development, but I cannot see why there should be a law such as to make it difficult or unwise for me to have some investments in this country; because, practically, under this system of income tax, I cannot come here and make any investments in practice because I suffer too much by taxation. It seems to me it is manifestly right that Income Tax should be collected in the country where the income is earned, and I would like to see a Resolution in general terms looking forward to our having a Conference. This is a matter for adjustment between the various Governments of the Dominions; it is not solely a matter for the United Kingdom to settle itself, and we ought to have a Conference of the representatives of the Finance Departments, or of the Finance Ministers, of the various Dominions with the Chancellor of the Exchequer as soon as the War is over, in order to come to some mutual understanding as to what is fair play in the interests of the whole Empire with regard to this particular question. So that I would like to see the Resolution read something in this way: "That the present system of "Double Income Taxation within the Empire is not only inequitable and unfair but "must necessarily retard the growth of the Dominions, which all require large "amounts of capital for development purposes," and this position will be accentuated in the near future, "and the Conference therefore urges that this matter may be taken in hand at the earliest date possible," or I would say, "immediately after the War, and that an amendment of the law may be made which will remedy the present unsatisfactory position." I do not like the words "as soon as financial conditions permit." I take it that would probably mean never, and I do not think the financial conditions ought to be allowed to prevent the remedying of what is not only a manifest injustice but an unwise thing, and I think that in the interests of the Empire we ought not to have double taxation. I quite understand what Mr. Massey had in his mind in his Resolution, but to my mind this injustice ought to be remedied. It is not only unjust, at the present time particularly, to the people from the Oversea Dominions who reside in this country and to Oversea companies having their headquarters in this country, but from an Empire point of view it is something which ought to be remedied. That is my feeling about it.

Mr. HAZEN: Mr. Chairman, I would like to say that I am inclined to agree, in a very large measure, with what has been said by Mr. Rogers and by Sir George Perley with respect to this Resolution which has been prepared and handed in by Sir Robert Chalmers. I do not like the Resolution at all, and I do not think it will accomplish any good purpose in the way in which it is put. Everybody agrees, I think—at least, everybody who has expressed himself at this Conference—that a system of Double Income Tax within the Empire is improper and is unwise, and calls for review, and should be reviewed and should be changed. Now, if that is the case, why should not proper steps be taken to change it, and why should we limit the Resolution by putting in words urging that the matter may be taken in hand "as soon as financial conditions permit"? If a system is unwise, if a system is unjust, if a system is unfair to people both in the British Isles and to the people in the Overseas Dominions, we are practically saying there that we will go on and wring a tax from people when it is unjust and improper, because the Chancellor of the Exchequer may possibly need the money. If it is unjust and improper, then the money ought to be found from some other sources, and if we leave those words in there—"as soon as financial conditions permit,"—I am disposed to think that it will be years and years before the step is

taken, because, after the War is over, the financial pressure and the need for taxes, and the need for sources of revenue will be quite as great as it is at the present time. I therefore think that those words ought to be eliminated from that Resolution if it is to have any effect whatever; and I think we are not taking very proper ground when we agree that the tax is wrong and unjust and improper, and retards the progress of the Empire, but yet say we shall not lay hands upon it until financial conditions permit us to do so. I think, Mr. Chairman, those words at least "as soon as financial conditions permit" should be stricken out of this Resolution. This Resolution comes to us prepared in the Office of the Chancellor of the Exchequer.

Sir ROBERT CHALMERS: May I interrupt for a moment to say that the words you are speaking of are those of Mr. Massey, which were adopted by the Chancellor of the Exchequer.

Mr. MASSEY: I want all I can get; please do not make any mistake about that.

Mr. HAZEN: I want those words to come out, Mr. Massey. I can understand the Chancellor of the Exchequer putting them in, but I do not think this Conference ought to put them in for a single moment. I think it is very unwise. Further than that, this Resolution is simply prepared from one standpoint, that is, from the standpoint of the investor in the British Islands. What does it say?—"calls for review in "relation (i) to firms in the United Kingdom doing business with the Oversea Dom-"inions, India, and the Colonies;" and "(ii) to private individuals resident in the "United Kingdom who have capital invested elsewhere in the Empire." It seems to me, the system of double taxation calls for review in relation to other things. It surely calls for review in relation to companies in the Dominions who are doing business with the United Kingdom and with other Dominions, and it surely calls for review also in relation to private individuals resident in the Dominions who have capital invested elsewhere in the Empire. This draft Resolution is prepared simply from the point of view of the man residing or the firm doing business in the British Isles. I think that is most objectionable, because I think the injustice, if it exists, exists both ways. There are many people residing in the Dominions and doing business in Great Britain, or individuals who reside in the Dominions and have capital invested in the United Kingdom.

Mr. MASSEY: We have such cases in our own hands.

Mr. HAZEN: Yes, and to whom quite as much injustice is being done as to people in the United Kingdom who have their capital invested in New Zealand, Australia, Canada, or elsewhere in the Oversea Dominions.

Mr. MASSEY: You can remedy that, as we have remedied it in New Zealand.

Mr. HAZEN: Of course we can remedy it, and the British Government can remedy it, but we as a Conference here representing different parts of the Oversea Dominions are asking that there shall be a remedy applied all round, as I understand it, on a fair and equitable basis. Therefore I think it is not wise for us to put a Resolution on record that would give the impression that it is only to be remedied from one standpoint, and that standpoint applying to the individuals resident in the United Kingdom, and the firms in the United Kingdom doing business in the Empire outside the United Kingdom. It seems to me that that view must be considered before we pass this Resolution.

Coming back to the other point, reference has been made to the drafting of the Resolution, and I may say that those words, "as soon as financial conditions permit," ought under no circumstances to be allowed to continue in the Resolution. If, as I said before, it is unjust and improper, and contrary to the interests of this Empire, that Double Income Tax should be imposed, then the sooner we get rid of it the better, and if money is required for the purpose of carrying the British Empire through the War, or for other purposes, that money should be obtained from other sources. There is no justification for the retention of the tax, if it is admitted to be an improper tax,

by saying that the money is needed, because the money could be found from other sources which would not be objectionable or unfair, and would not work against the general interests of the Empire.

General SMUTS: Mr. Long, on the whole I prefer the Resolution which has been put forward on behalf of the Chancellor of the Exchequer. I prefer it in the first place because the mere proposal is a very distinct concession already. So far, we from the Dominions have been putting forward the strongest claims for reform, and at previous Conferences we have always been met with a more or less *non possumus* attitude by the Chancellor of the Exchequer. Now a distinct advance is marked. The Chancellor of the Exchequer now comes forward with a proposal which in substance is all that we can desire, and embodies the operative part of the proposal which was put forward on behalf of New Zealand. I therefore think that this is an advantage which we should not throw away, and I should like to pin down the Chancellor of the Exchequer to his own concession that he has made now, and, therefore, I should like to pass the Resolution he has brought forward on this occasion.

Mr. HAZEN: How long do you suggest it will be before the Chancellor of the Exchequer will admit that the financial circumstances will permit of it?

General SMUTS: That raises the point which was discussed at a previous meeting. It was explained to us by Sir Robert Chalmers, and also by Mr. Chamberlain, who is very conversant with this question, that this question of the Double Income Tax goes to the root of the whole taxation system of this country. The Income Tax is the basis of the whole fiscal system of this country to-day. You cannot dissociate the element of Double Income Tax from the Income Tax itself. That we must assume, and I can quite understand that it is so, and therefore, if this question of the Double Income Tax on which we feel so strongly is to be dealt with, the whole subject calls for careful inquiry. How you are going to conduct an inquiry like that during the present crisis passes my comprehension. I think we must in fairness admit that whilst this War is going on, while every nerve is being strained to achieve victory, and a victory which will be a foundation for all future performance, it would be most unreasonable on our part to press for such an inqury being instituted. The words "as soon as financial conditions permit" seem to cause Sir George Perley to boggle.

Sir GEORGE PERLEY: That means postponing it permanently, I should say.

General SMUTS: It satisfies Mr. Massey.

CHAIRMAN: General Smuts has reminded me of the previous debate, which unfortunately there has not yet been time to get from the printer, in which the Treasury preferred different machinery.

Sir ROBERT BORDEN: Why not say "immediately on the conclusion of the War"? let it read "as soon as war conditions permit," because that is the only bar when the War is over.

Sir ROBERT CHALMERS: Strike out the word "financial" and leave it "as soon as conditions permit."

Mr. MASSEY: I am afraid that does not improve it.

General SMUTS: "War conditions," Sir Robert, would mean that the Dominions do not call for this reform while this War is going on.

Sir ROBERT CHALMERS: I will agree with "war conditions."

General SMUTS: That would remove the objection of Sir George Perley.

Sir GEORGE PERLEY: I certainly would not ask them to go into it now during the War; I am not asking that.

General SMUTS: Then I think for "financial" we might substitute "war conditions"—"as soon as war conditions permit."

Sir ROBERT BORDEN: Why not say "immediately on the conclusion of the War"?

Mr. HAZEN: Then you will get something definite.

Sir ROBERT BORDEN: Have you any objection to that?

Mr. CHAMBERLAIN: If I may interrupt, I think there can be no objection to that if that better meets the views of the Conference. I would just like to say that I think some of the Dominion speakers, in criticising the wording of the Resolution, have undervalued the force of the arguments which they have addressed to the Conference in bringing the subject forward. After all, the arguments used by the Dominions representatives show what we are clearly conscious of, that in his own interests the British Chancellor of the Exchequer must review this matter now. He has no interest in delay, because it is perfectly true that with the very high rates of tax which are now in force in this country there is a great and growing tendency to remove the offices of companies to other places, and the Chancellor of the Exchequer will then lose not merely the revenue which he now collects on income earned abroad but he loses the whole revenue. It is therefore to the interest of the British Chancellor of the Exchequer to get this matter reviewed and to arrive at a decision upon it as early as possible. If I may add one word to illustrate it—and I am a little shy about doing this, because I do not sit here as an ex-Chancellor of the Exchequer, or indeed as a British Minister, and I do not want to use my position as one of the representatives of India to argue against the Dominions on a matter on which, as far as it goes, the interest of India is exactly the same as the interest of the Dominions. I would like to put one case to the Conference just to show the difficulties which we have to meet. The main claim that has been made by the Dominions is that the Income Tax should be collected in the country where the income is earned. Now, consider the position of a British Finance Minister called upon to defend this situation: an Englishman of great realized wealth, liable according to our present law to pay a very high rate of taxation—both Income Tax and super-tax—sells out all his investments in the United Kingdom or in foreign countries and invests it entirely in the securities of that Dominion which has the lowest rate of tax. Well, he is evading his just dues to the British Government.

Mr. MASSEY: Not necessarily.

Mr. CHAMBERLAIN: You are making it easy for the millionaire here to pay tax at a lower rate than you exact from a much poorer person. There really are countless difficulties of that kind which do call for careful examination, but we all in this country, as well as in the Dominions, desire that the subject should be taken up and thoroughly explored at the earliest possible moment. If it could be explored, as Sir George Perley has suggested, not as being a question of British Income Tax only, but as a question of Income Tax throughout the Empire and in conference with the Finance Ministers of the other parts of the Empire, I think any British Government would be glad to adopt that method.

Sir ROBERT BORDEN: Mr. Chairman, I do not pretend to understand this subject in its particularity or in its details, and therefore I am looking at it only in the broadest aspect. It is probable that I do not sufficiently understand it to realize all the difficulties which may confront a Chancellor of the Exchequer here in dealing with the subject. Mr. Chamberlain has made some of them pretty clear. The subject impresses me in its broad aspect in this way. It is desirable for us to keep the natural resources of the Empire under our own control so far as possible. For that very reason it is important that there should be no handicap upon the investment of British capital in developing the resources of other parts of the Empire as compared with the opportunities afforded to foreign capital for that purpose. Under present conditions there is, if I understand the situation correctly, an unintentional discrimination in favour of foreign capital, which, coming to one of the Dominions for investment, will not be faced with double taxation, or may not be, while British capital invested for the same purpose is confronted with that handicap.

Mr. MASSEY: That is under the present position.

Sir ROBERT BORDEN: Under the present position. From that broad standpoint alone I do think the situation demands review. I am not in a position to understand why the first and second paragraphs of the Resolution which relate to the position of particular firms should be included; and those who are more familiar with the subject than I am will instruct me if I am wrong when I suggest that everything is included in (iii) of the draft Resolution. If there is any particular purpose to be fulfilled by (i) and (ii) which is not fulfilled by (iii) I would not press the suggestion. In drafting it is better not to go into particulars or to mention particular subjects when there is a sufficiently comprehensive general statement. It seems to me that (iii) is sufficiently comprehensive in itself. If I am right in that view then I suggest that the Resolution would be improved by leaving out (i) and (ii).

Sir JOSEPH WARD: I do not think that would do.

Sir ROBERT BORDEN: Why not?

CHAIRMAN: These are the words of the original amendment.

Sir JOSEPH WARD: The conditions are very well known in our respective countries that you want to individualize.

Sir ROBERT BORDEN: If you begin to enumerate, you should be very certain that you enumerate everything necessary.

Mr. HAZEN: If you are going to individualize do not you want to individualize more than you have done?

Sir ROBERT BORDEN: The danger is that the moment you begin to particularize, you exclude all that is not specially mentioned.

Sir JOSEPH WARD: The last one deals with capital only, whereas as a matter of fact there are firms in the United Kingdom having a house in your country and a house here, and you could not include them under the provisions of (iii), because they are not applicable. Then there are private individuals resident in the United Kingdom who have capital invested elsewhere.

Sir ROBERT BORDEN: I do not press it, but I am still not convinced as to the drafting. I am willing to leave it as it is, if that is the opinion of the Conference, but I would suggest that the words "immediately after the conclusion of the War" should be substituted in the concluding paragraph for the words "as soon as financial conditions permit"; and I would also suggest that the word "may" in the last line but one should be eliminated and the word "should" substituted for it.

Mr. MASSEY: The word should be "shall," or otherwise it is not grammar.

CHAIRMAN: You could not have "shall," which is mandatory.

Mr. MASSEY: No, I do not say it should be that.

Sir ROBERT BORDEN: It would read therefore in this way: "The Conference "therefore urges that this matter may be taken in hand immediately after the con- "clusion of the War, and that an amendment of the law should be made which would "remedy the present unsatisfactory position." I do not think that materially alters the meaning, but it makes it read more sensibly.

CHAIRMAN: I think that is all right.

Sir JOSEPH WARD: Yes, "should" is the right word.

CHAIRMAN: Then it would read as follows: "That the present system of Double "Income Taxation within the Empire calls for review in relation (i) to firms in the "United Kingdom doing business with the Oversea Dominions, India, and the "Colonies; (ii) to private individuals resident in the United Kingdom who have "capital invested elsewhere in the Empire, or who depend upon remittances from "elsewhere in the Empire."

Sir ROBERT CHALMERS: Those last words represent a suggested amendment by Sir James Meston, which he handed to me, and I willingly accept it.

Mr. MASSEY: I do not see any objection to that.

CHAIRMAN: "and (iii) to its influence on the investment of capital in the United "Kingdom, the Dominions, and India, and to the effect of any change on the position "of British capital invested abroad. The Conference therefore urges that this matter "may be taken in hand immediately after the conclusion of the War, and that an "amendment of the law should be made which will remedy the present unsatisfactory "position."

Mr. HAZEN: I would like to call the attention of the Conference to the fact that the declaration is that the system of Double Income Taxation within the Empire, not within the British Isles, but within the Empire, calls for review, and then the rest relates simply to those matters within the British Isles, firms in the British Isles, and private individuals resident in the United Kingdom, and (iii) is "its influence on the investment of capital in the United Kingdom." That single clause is limited by the language of the first and second clauses, because you have to particularize. It seems to me that the system of Double Income Tax within the Empire calls for a review as well in the Oversea Dominions as here in the British Isles.

Mr. MASSEY: But we can do that now.

Mr. HAZEN: So can they do it now, if they want to.

Mr. MASSEY: No, the legislature of the United Kingdom cannot interfere with our system of Income Tax in Canada, New Zealand, or anywhere else—it is quite impossible. They have to do it at this end, and we at the other.

Mr. HAZEN: But they have full power to fix their Income Tax here so that it will not bear unjustly on residents in the British Isles or on firms here doing business outside. They have the same power that we have.

Mr. MASSEY: Yes, if you exercise your powers, then you get over the difficulty to which you refer.

Mr. HAZEN: As this Resolution appears, the only trouble dealt with is with regard to people who are in the British Isles doing business outside, or residents in the British Isles who have investments outside.

Mr. MASSEY: But in the case of residents in Canada you must deal with them yourselves; and when I say "yourselves" I mean the Dominion Parliament.

Mr. HAZEN: Certainly, but this Resolution refers to double taxation within the Empire, and it refers to the whole Empire, not simply to the taxation in the British Isles.

CHAIRMAN: May I point out, Mr. Hazen—I do not want to interrupt the discussion, but we have a great deal of other business—that (i) and (ii) and half of (iii) are to be found in Mr. Massey's original Resolution. Practically we have admitted it as a Second Reading, and it is only the little bit at the end that is put in by the Treasury.

Mr. HAZEN: I have very great respect for Mr. Massey's acumen and experience, but even Homer sometimes nods, and even Mr. Massey may sometimes make a mistake.

Mr. MASSEY: Let me say a word here. I have refrained from saying anything because I did not want to prolong the discussion, but I thought, when I was drafting the first Resolution, about inserting the word "war" instead of "financial," and then it would have read exactly according to the suggestion that has been made just now. But it occurred to me, though we are all hoping very much that the War will come to an end this year, or next year at the very latest, yet we do not know. We can recollect a Seven Years War and quite a number of other wars which lasted very much longer than that, and this War may go on for three or four years, though we all hope it will not, and I trust it will not. It is a very serious matter already, and it would

be twenty thousand times more serious if it went on for years to come. But if it goes on for years and this position continues, of British firms leaving Britain and going to neutral and other countries in order to avoid this system of Double Income Tax, then it is going to become a very serious matter. I do not want to say that the present system is going to last until the end of the War, because I think it ought to be taken in hand at the earliest possible moment, and when it becomes necessary for the Chancellor of the Exchequer and his Department to review the position and ask for more money, as they undoubtedly will, there is no question about it, because the House is sitting now and they will require further legislation, then, with all due deference to the opinion expressed the other day, I think that is the time to make the alteration necessary without waiting for a possible end of the War. I hope the Conference sees my point. If we say, "war" here, though, I have no strong objection to it, it means that the present system must last to the end of the War, and I do not want it to be so, if I can avoid it.

Sir Robert Borden: They have told us distinctly that they cannot take it up until the end of the War.

Mr. Massey: With all due deference to the Department, I am not prepared to accept that, and I say that after having a long discussion on the subject with the Chancellor of the Exchequer himself.

Sir Robert Borden: I should prefer to take them at their word and get a definite date fixed, that is, the conclusion of the War.

Mr. Massey: That may be the better course. With regard to the other points, I would just like to say that this is not an Act of Parliament coming up for the interpretation of a judge. All that is intended by the original Resolution as drafted by myself, or as amended by the Chancellor of the Exchequer, is to call attention to the present unsatisfactory and, as I think, unfair double system of taxation which is in operation. Attention has been called to it, and we, having affirmed the principle and expressed our opinion, that is, I think, quite sufficient for the time being, and is as far as we can go.

Now that I have been drawn into the discussion again just let me say a word with regard to the point raised by Mr. Chamberlain. Mr. Chamberlain suggested that it might be possible, if this happened to be agreed to and took legislative shape, wealthy people, or companies, or syndicates doing business at present in Britain might transfer their headquarters to one of the Dominions and that Dominion——

Mr. Chamberlain: I beg pardon, not people doing business but a man with invested capital might transfer his investment and would transfer it to that part of the Empire where he would pay the lowest taxation.

Mr. Massey: Very well. That is not the idea in my mind or in the mind of any one of the members of the Conference, I am quite certain. The idea is this, that a man in such a position as that referred to by Mr. Chamberlain, if he thought about transferring his capital to that Dominion which charged the lowest possible rate of Income Tax, would be faced with this position, and I think it is a position most of us will agree with, that in such a case he would be called upon, and the law ought to provide that such a man should be called upon, by the legislature of the United Kingdom to pay the difference between the rate of Income Tax in that country and the rate of Income Tax which the ordinary British citizens pay in the United Kingdom. That is what was contemplated in all the previous discussion, and I think that power should exist. However, that is a matter for the British Legislature itself rather than for us for this Conference.

Sir George Perley: I would like to call attention to the word "may" in the second line of the last section. If you put "should" in the last line but one I think it would

be better to have "should" in the second line: "The Conference therefore urges that this matter should be taken in hand," and "an amendment of the law should be made."

Mr. MASSEY: It is consequential; I do not think it makes a great deal of difference, but I do not object to it.

CHAIRMAN: May we adopt that Resolution as amended?—(*Agreed*).

Development and Control of Natural Resources.

CHAIRMAN: The next business of the Conference is the motion standing in the name of Sir Robert Borden, which was before the Imperial War Cabinet yesterday.

Sir ROBERT BORDEN: I should like to say a few words, but I shall not take more than three minutes. As I have already informed you, Mr. Long, privately, this Resolution was considered by the representatives of the Overseas Dominions before I gave notice of it, and its terms are accepted by them. At your suggestion, Sir, it was referred, before its consideration here, to the Imperial War Cabinet, and, without saying more, it may be prudent to place on record that it has the complete and unanimous sanction of the Imperial War Cabinet, so that we are at full liberty to consider it from that point of view.

It does not seem to require any prolonged explanation: It begins, "Having regard "to the experience obtained in the present War, this Conference records its opinion "that the safety of the Empire and the necessary development of its component parts "require prompt and attentive consideration, as well as concerted action, with regard "to the following matters: (1) The production of an adequate food supply and arrange-"ments for its transportation when and where required, under any conditions that "may reasonably be anticipated." That is so obvious a necessity from the experience of the present War that I need not urge it. That experience has brought to light and emphasized certain considerations not previously apparent; and to-day there is no doubt as to the importance of having in the United Kingdom, in case of future necessity, a more adequate supply for emergencies than has been considered necessary in the past. That subject, however, is rather for domestic determination than for any suggestion by this Conference.

The next subject mentioned in the Resolution is: (2) "The control of natural "resources available within the Empire, especially those that are of an essential char-"acter for necessary national purposes, whether in peace or in war." The experience we have gained during the past few years indicates the importance of this conclusion. Unfortunately, we have found out that certain natural resources vitally necessary for national purposes, particularly for national purposes in war, have been more or less under the control of enemy nations, and were under that control at the outbreak of war. I take it therefore there should be no objection from this Conference or from any source to the affirmation of the principle embodied in the second paragraph of the Resolution.

The third portion of the Resolution declares to be desirable "The economical "utilization of such natural resources through processes of manufacture carried on "within the Empire." We have also learnt from the experience gained in this War that natural resources which we absolutely control have been utilized for the upbuilding of industries in enemy nations and utilized in that respect to our disadvantage. Our Empire supplied the raw materials without which many industries in enemy nations, useful not only in peace but in war, were upbuilt in the first instance and have since been carried on. When war broke out we were without adequate supply, and we had no development which would enable us to produce it. It was in view of all these considerations that I took counsel with my colleagues from the Oversea Dominions as to the affirmance of the principles embodied in this Resolution, and, having obtained their assent to that view, in which they all heartily concurred, I have brought

the subject to your attention, and it now stands here with that sanction and with the unanimous approval of the Imperial War Cabinet. I therefore beg to move the Resolution.

Mr. Massey: I second that motion.

Chairman: It is moved by Sir Robert Borden and seconded by Mr. Massey. Does anybody wish to make any reference to it?

Sir Joseph Ward: I am in full accord with the proposals contained in Sir Robert Borden's Resolution, and at the meeting, to which he very kindly invited me, we all assented, and it is quite the fact that as far as the Imperial War Cabinet is concerned it has been dealt with there, but one cannot allude to any aspect of the matter discussed there except to say that it was very favourably received.

When this War is over it is beyond all question that the first portion of Sir Robert Borden's Resolution in connection with transportation will be dealt with, in my opinion, by all the oversea countries, and whatever any British country may do, is entirely for that British country to decide for itself. The result of this War has been, unhappily for the whole of us, an unpreventible and an unparalleled increase in the cost of the transportation of products from all parts of the Empire to the heart of the Empire for the requirements of those who are working for the preservation of the Empire, the Army and the Navy. It may be, when this War is over, with the depletion of shipping, that, with the greatest efforts made, a long period may supervene before the ships themselves in the necessary number to carry on the trade of the world can be got so as to ensure a quick lowering of the freights, which is so essential from the point of view of the producing countries, and also essential from the point of view of any consuming countries to which those producing countries send their products. It seems to me to be of the greatest importance that the first Resolution of Sir Robert Borden should be favourably entertained, as I have no doubt it will be, in connection with the future development of the Empire as a whole. I want to say that with the other portions of his proposal about the control of the natural resources available within the Empire, and their economical utilization, I am in hearty accord, because I recognize and I am perfectly certain that every sensible man engaged in public life all over the British Empire recognizes, that we have got a stupendous work before us at the conclusion of this War, and, whatever the final decision may be, and whatever the internal difficulties in any portions of our countries may be, it seems to me to be of vital consequence that there should be co-operation and co-ordination as soon as possible and as far as possible for giving full effect to the proposals contained in Sir Robert Borden's Resolution. I have very much pleasure in supporting it.

Mr. Massey: On this subject of transportation I would just like to say that it is a subject which intensely concerns us on the other side of the world; but while I am in accord with the opinion which Sir Joseph Ward has expressed, it is just as well to mention (because this is all going on record now) that our difficulty has arisen from the fact that a very large proportion of the British mercantile marine is employed not only for the purpose of carrying on the War from the British point of view, not only in connection with carrying supplies to the British Army, and the supplies required by the Imperial Navy, and the population of the United Kingdom, but also because many of our ships are to-day being used and will be used so long as the War lasts, necessarily, for the purpose of carrying supplies to our Allies in France and the French Army, to Italy and the Italian Army, to Russia and the Russian Army, and for the purposes of the combined forces which are at present at Salonika. That is a difficulty we are suffering at present but, when the War comes to an end those ships will be immediately released, or very soon after the War, and in consequence we may expect a great improvement in the transportation of goods within the Empire itself, and produced within the Empire, to other countries outside the Empire where those goods are required. I do not want to repeat more than I can possibly help what I have said on a previous occasion, but this question of transportation is undoubtedly of tre-

mendous importance to the Oversea Dominions, even more than to the heart of the Empire, because unless something is done it will be made impossible for us to compete with other countries outside the Empire which are nearer to the markets of the world than we are. That is our difficulty. This question came up (and I am not committing any breach of confidence in saying this) somewhat unexpectedly yesterday on a motion of mine which was being discussed by the Imperial War Cabinet. I am not going to repeat any of the opinions expressed, because we have not done with it there; it is to be dealt with there; Members will recollect the question was so important that the wording of the Motion was referred to a special Sub-Committee and is being dealt with by the Sub-Committee this afternoon, and I have no doubt that during the next two or three days a great deal more will be said on the subject. However, I take the opportunity of saying now that I, representing New Zealand, along with my colleague Sir Joseph Ward, realize the tremendous importance of some great improvements being made in this respect not only by the Government of the United Kingdom, but also by the Governments of the Dominions themselves.

The Resolution was put to the Conference by the Chairman and agreed to as follows:—

Having regard to the experience obtained in the present War, this Conference records its opinion that the safety of the Empire and the necessary development of its component parts require prompt and attentive consideration, as well as concerted action, with regard to the following matters:—

(1) The production of an adequate food supply and arrangements for its transportation when and where required, under any conditions that may reasonably be anticipated.

(2) The control of natural resources available within the Empire, especially those that are of an essential character for necessary national purposes, whether in peace or in war.

(3) The economical utilization of such natural resources through processes of manufacture carried on within the Empire.

The Conference commends to the consideration of the Governments summoned thereto the enactment of such legislation as may assist this purpose.

Control of Imports after the War from present Enemy Countries.

CHAIRMAN: The next Resolution is one standing in Mr. Massey's name, which falls within the same category, but deals only with the question of the control of imports and the preventing of dumping. We might take it formally.

Mr. MASSEY: I beg formally to move the Resolution.

CHAIRMAN: The Resolution is as follows: "The Imperial War Conference consider it desirable with a view to prevent dumping or any other mode of unfair competition from present enemy countries during the transition period after the War, that the several Governments of the Empire, while reserving to themselves freedom of action in any particular respect, take power to control the importation of goods originating in such countries into the Empire for a period of twelve months after the War."

Mr. MASSEY: I move the Resolution standing in my name and which has been read by the Chairman.

CHAIRMAN: It is before the Conference. May we take it as agreed to?

Sir ROBERT BORDEN: Yes, I think we discussed the terms before, and certain suggestions made were embodied in it.

CHAIRMAN: Yes. (*Agreed.*)

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FOURTEENTH DAY.

Thursday, 26th April, 1917.

THE IMPERIAL WAR CONFERENCE MET AT THE COLONIAL OFFICE AT 3.30 P.M.

PRESENT:

The Right Honourable WALTER H. LONG, M.P., Secretary of State for the Colonies (Chairman of the Conference).
The Right Honourable Sir ALBERT H. STANLEY, M.P., President of the Board of Trade.
The Right Honourable R. E. PROTHERO, M.P., President of the Board of Agriculture and Fisheries.

Canada.

The Right Honourable Sir R. BORDEN, G.C.M.G., Prime Minister.
The Honourable Sir G. H. PERLEY, K.C.M.G., Minister of Overseas Military Forces.
The Honourable R. ROGERS, Minister of Public Works.
The Honourable J. D. HAZEN, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. MASSEY, Prime Minister.
The Right Honourable Sir JOSEPH WARD, Bart., K.C.M.G., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. SMUTS, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. MORRIS, K.C.M.G., Prime Minister.

India.

The Right Honourable A. CHAMBERLAIN, Secretary of State for India.
Sir J. S. MESTON, K.C.S.I., Lieutenant-Governor of the United Provinces.
Colonel His Highness The MAHARAJA OF BIKANER, G.C.S.I., G.C.I.E., A.D.C.
Sir S. P. SINHA, Member Designate of the Executive Council of the Governor of Bengal.
Mr. H. C. M. LAMBERT, C.B., Secretary to the Conference.
Mr. E. J. HARDING, Junior Assistant Secretary to the Conference.

THERE WERE ALSO PRESENT:

Sir G. V. FIDDES, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.
Mr. A. D. STEEL-MAITLAND, M.P., Parliamentary Under Secretary of State for the Colonies.
The Right Honourable Sir MAURICE DE BUNSEN, G.C.M.G., G.C.V.O., C.B., Acting Assistant under Secretary of State for Foreign Affairs.
The Right Honourable Sir F. PONSONBY, K.C.V.O., Keeper of the Privy Purse.
Lieutenant-General Sir C. F. N. MACREADY, K.C.B., K.C.M.G., Adjutant-General to the Forces.
Sir W. GRAHAM GREENE, K.C.B., Secretary of the Admiralty.
Sir H. LLEWELLYN SMITH, K.C.B., Permanent Secretary, Board of Trade.

Mr. Garnham Roper, C.B., Assistant Secretary, Harbour Department, Board of Trade.
Mr. H. Fountain, C.B., C.M.G., Assistant Secretary, Commercial Department, Board of Trade.
Mr. Percy Ashley, Board of Trade.
Lieutenant-Colonel W. Dally Jones, Assistant Secretary to the War Cabinet, and
Private Secretaries.

National War Museum.

Chairman: I have been asked to mention to the Conference that there is a proposal emanating from His Majesty's Office of Works for the establishment of a National War Museum in this country, and a letter* was addressed to me by the Director-General asking me to call the attention of the Dominions, Colonies, and all parts of the Empire to it, on the ground that it will not be complete if it does not illustrate by documents and materials, etc., the part which the Dominions have played in the War. On the other hand, it is thought probable that the Dominions will have their own museums. I thought the simplest plan was to mention it here, and then to send a copy of this letter to the Governors, and also to the Ministers over here.

Sir Joseph Ward: We have our museum in New Zealand where we want to deposit some of the war relics, but I suppose all the countries will really have an excess of them.

Chairman: Yes, I think so.

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Imperial Preference.

Chairman: Is Mr. Massey ready to propose his Preference Resolution?

Mr. Massey: I move it, of course, but I do not think we need to discuss it now.

Chairman: This is the Resolution which was settled this morning at the Imperial War Cabinet:—

> "The time has arrived when all possible encouragement should be given to the development of Imperial resources and especially to making the Empire independent of other countries in respect of food supplies, raw materials and essential industries. With these objects in view this Conference expresses itself in favour of—
>
> "(1) The principle that each part of the Empire, having due regard to the interests of our Allies, shall give specially-favourable treatment and facilities to the produce and manufactures of other parts of the Empire;
>
> "(2) Arrangements by which intending emigrants from the United Kingdom may be induced to settle in countries under the British flag."

Do you move that, Mr. Massey, in place of the motion which stands in your name?

Mr. Massey: Yes.

Chairman: You adopt this in place of the original motion?

Mr. Massey: Yes.

Sir Robert Borden: I will second that Resolution. I think it should be stated in connection with it that the whole subject has been discussed very fully and exhaus-

*See pages 168-170.

tively in the Imperial War Cabinet, and the particular words of the Resolution have been settled by a Drafting Committee, so that great care and attention have been given to the precise phraseology as well as to the principle which is expressed. For that reason it is unnecessary here to go into any full discussion on the subject.

Sir JOSEPH WARD: I would like to say that, but for this matter having been up before and settled by the Imperial War Cabinet this morning, this Resolution would certainly be a subject for a very interesting discussion at this Imperial War Conference. I think we are all strongly in favour of what is contained in this Resolution, and personally I am very glad to see that we are going to have a practical course suggested.

CHAIRMAN: I am very glad that on this very occasion a Resolution of this character can be passed with absolute unanimity, not only all the representatives of the Dominions concurring in it, but also those who happen to be representatives of the Home Government. We have the Secretary of State for India here, and I should just like to repeat what I said at the beginning of our proceedings, that it adds great interest, I think, to the passing of this Resolution to-day that the Secretary of State for India is present, when we remember the history of this movement for Imperial development and Imperial union. I regard this as a very great step. (Hear, hear.)

Mr. MASSEY: I would just like to add to what you have said, Mr. Long, that, if this Conference had done nothing else but agree to this Resolution, then the convening of the Conference would have been justified. In the ordinary course I should have spoken at some length in support of it, but I have said everything I wanted to say, or nearly everything I wanted to say, at the Imperial War Cabinet, and it is therefore not necessary I should repeat it now.

CHAIRMAN: It is passed unanimously.

General SMUTS: It is sufficiently clear from Sir Robert Borden's statement how the matter comes up here.

CHAIRMAN: Yes, it comes up here after full consideration by the Imperial War Cabinet.

General SMUTS: And that will go on record, because otherwise one would like to say something here about it, which I do not think, in view of that, is necessary.

Sir ROBERT BORDEN: For the reason which I gave I did not go into any discussion.

General SMUTS: No, but I think it should go on record.

Sir ROBERT BORDEN: I intended that, so that it should not appear that we were passing the Resolution in a casual way.

General SMUTS: You say it is very important?

Mr. CHAMBERLAIN: Very important.

General SMUTS: Yes, and therefore, otherwise, one would like to speak to it.

CHAIRMAN: It will be recorded that the Resolution is passed unanimously.

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SESSIONAL PAPER No. 42a

FIFTEENTH DAY.

Friday, 27th April, 1917.

The Imperial War Conference met at the Colonial Office at 3.30 p.m.

Present:

The Right Honourable Walter H. Long, M.P., Secretary of State for the Colonies (Chairman of the Conference).

Canada.

The Right Honourable Sir R. Borden, G.C.M.G., Prime Minister.
The Honourable Sir G. H. Perley, K.C.M.G., Minister of Overseas Military Forces.
The Honourable J. D. Hazen, Minister of Marine and Fisheries and Minister of the Naval Service.

New Zealand.

The Right Honourable W. F. Massey, Prime Minister.
The Right Honourable Sir Joseph Ward, Bart., K.C.M.G., Minister of Finance.

South Africa.

Lieutenant-General the Right Honourable J. C. Smuts, Minister of Defence.

Newfoundland.

The Right Honourable Sir E. P. Morris, K.C.M.G., Prime Minister.

India.

The Right Honourable A. Chamberlain, Secretary of State for India.
Sir J. S. Meston, K.C.S.I., Lieutenant-Governor of the United Provinces.
Colonel His Highness The Maharaja of Bikaner, G.C.S.I., G.C.I.E., A.D.C.
Sir S. P. Sinha, Member Designate of the Executive Council of the Governor of Bengal.
Mr. H. C. M. Lambert, C.B., Secretary to the Conference.
Mr. E. J. Harding, Junior Assistant Secretary to the Conference.

There were also present:

Sir G. V. Fiddes, G.C.M.G., C.B., Permanent Under Secretary of State for the Colonies.
Mr. A. D. Steel-Maitland, M.P., Parliamentary Under Secretary of State for the Colonies.
Sir Edward Troup, K.C.B., Permanent Under Secretary of State, Home Office.
Brigadier-General B. E. W. Childs, C.M.G., Director of Personal Services, War Office.
Sir E. R. Henry, G.C.V.O., K.C.B., Commissioner of Police for the Metropolis.
Lieutenant-Colonel W. Dally Jones, Assistant Secretary to the War Cabinet.
and
Private Secretaries.

Address to His Majesty the King.

CHAIRMAN: It has been suggested to me that it might be well to ask the Conference to consider whether they would like to adopt a suggestion, which has been made in more than one quarter, that we should ask permission to be allowed to present in person an address to our Sovereign. If the Conference so decide, then I will submit a draft of an address which they may be willing to consider. Perhaps it will be moved by the senior Prime Minister present. I will raise this presently when we have got through some of the other business on the Agenda.

Sir JOSEPH WARD: Does that mean that at the end of our business we should formally meet in the presence of the King?

CHAIRMAN: No; it means that we submit a request to the King to be allowed to present to him an address from the Conference.

Sir JOSEPH WARD: Together?

CHAIRMAN: Yes.

Sir JOSEPH WARD: All being present when the King is present?

CHAIRMAN: Certainly; we wait upon the King at Buckingham Palace to present to him an address from the Conference as a body.

Sir JOSEPH WARD: I think that is a most appropriate and very fine idea.

CHAIRMAN: We will discuss that further when General Smuts arrives. Now we will take the Indian Resolution.

Reciprocity of Treatment between India and the Self-governing Dominions.

Mr. CHAMBERLAIN: Mr. Chairman, I think I need say very little in regard to the Motion which I have laid before the Conference, for, thanks to the kindness of Sir Robert Borden—and I hope there is no impropriety in my referring to the matter—we were afforded an opportunity of discussing this subject at length and with the greatest freedom and informality at a gathering that he convoked. At that gathering Sir Satyendra Sinha expressed the feelings of Indians and put their case with a sympathy and earnestness, and at the same time a moderation which I know was recognized on all hands. I do not desire to-day to travel over the ground which he covered on that informal occasion. All I invite the Conference to do is, accepting the principle of reciprocity of treatment between India and the other Dominions in this matter of emigration and visits, to commend to the favourable consideration of the Governments concerned the Memorandum which we have laid before the Conference.* The presence of the Indian representatives at this Conference marks a new stage in the development of the relations between India and other portions of the Empire, and the uniform consideration and kindness which have been extended to me and my colleagues from India throughout these gatherings have greatly moved us, and will, I am sure, be readily acknowledged and heartily welcomed in India. We are anxious that the entry of India into these Conferences should pave the way to a better understanding between India and the other Dominions, and we hope that in time, with that better understanding and with patience and forbearance on both sides, we may arrive at a solution of some of the difficulties which we have hitherto been unable to solve. Mr. Chairman, my colleagues and I recognize the strong feeling that there is in the Dominions that they wish to preserve the homogeneous nature of their population and the special civilization which they have striven to cultivate, and I desire to make it clear that we neither claim nor expect anything like an unrestricted right of emigration and settlement in the Dominions. What we particularly ask is that in the first place British Asiatics, that is, Asiatics of British nationality, should at least not be less favourably treated than other Asiatics. In the second place, we would ask that the freest facilities

*See Memorandum printed on pp. 170-173.

possible be given to educated Indians for travel, for study, or for visits, as apart from settlement, in the Dominions for any purposes. Lastly, we would ask that a kindly and sympathetic consideration should be given to those Indians who have already been permitted to settle in the Dominions. The subject is dealt with in more detail in the memorandum which we have laid before the Conference, and I think it is unnecessary for me to develop that detail further.

With these few words, I will venture to move the Resolution, and I might say I do so by the request of my colleagues, and in particular by the request of Sir Satyendra Sinha, who I had originally thought would move the Resolution himself. I beg to move the resolution of which I have given notice.

Sir Robert Borden: Mr. Chairman, I think there is a distinct advantage in having the representatives of India at this Conference, for the reason which has already been stated by Mr. Chamberlain. It has given us an opportunity to meet them face to face and discuss in a perfectly frank and at the same time courteous way the considerations that have to be taken into account and the viewpoint of the different portions of the Empire which are here represented. I entirely agree with what Mr. Chamberlain has said respecting the manner in which Sir Satyendra Sinha presented the case at the informal gathering already alluded to. His presentation of the case was courteous, moderate, and reasonable, but it was not the less impressive on that account. Mr. Chamberlain has stated in a sentence the ideal and the aspiration of the self-governing Dominions with regard to their present social order and the type of civilization which they are desirous of building up. It must not be understood that because of that ideal and because of that aspiration they desire to cast the slightest reflection on other ideals of civilization which are of a more ancient order, and which may, and undoubtedly do, possess certain advantages and merits to which we cannot altogether lay the same claim. But there is the ideal and the aspiration to which I have alluded. Of course it is manifest that public opinion in all the Dominions of the Empire must be taken into account, because it would be idle for any Government to undertake what public opinion would not in the end sanction or sustain.

I am very happy indeed to agree to the Resolution which Mr. Chamberlain has moved, and to say also that the consideration he has mentioned and those which are set forth in the Memorandum alluded to in the Resolution, will be taken into account. We shall do our best to arrive at a fair understanding with regard to these matters, and I have a somewhat confident hope that a clear understanding will be reached.

Chairman: Does any other member of the Conference wish to make any remark?

Mr. Massey: I would just like to say, before you put the question, Mr. Long, that I support the motion which has been moved by Mr. Chamberlain, and I am quite sure that I express the opinion of my fellow members when I say, following up the point that has been made by Sir Robert Borden, that it has been a great advantage to us and to the Conference to have had with us the representatives of India during the last few weeks. I trust that with the good start which has been made—and I think that a very good start has been made—the people of the different Dominions and the native races of India will be able to work together for the good of the Empire of which we are fellow citizens, and I hope that when another Conference comes along, as it will in due course, we shall all meet again, and continue to build upon the foundation which has been laid since we met a few weeks ago.

Sir Satyendra Sinha: Permit me just to say in one word what I feel with regard to the very sympathetic and courteous treatment with which the Conference has met this question of the position of Indians in the Empire. I am perfectly certain that the spirit which has been shown by my fellow members of this Conference augurs well for the future, and that such questions as are still outstanding will be solved to the satisfaction of both parties in the same spirit as this has been treated now. I desire to thank the members of the Conference from all the Dominions overseas for the kindness and courtesy with which they have treated this question.

Sir Joseph Ward: Mr. Long, the way this Conference has stood out is specially interesting from the fact that one of the greatest possessions of the British Empire has had representation here in the person of the members from India, in addition to the distinguished representative of India who is in His Majesty's Government. It marks an accession to the very fast development which has already taken place between all parts of the Empire, particularly in their attachment to the Motherland, which augurs well for the future development in the direction of greater solidarity which so many people have earnestly hoped might be brought about as the years roll by. In the future development of the Empire, it appears to me that the attendance of these gentlemen here marks an advance in connection with Empire matters that is invaluable from the point of view of the Empire as a whole. I am one of those who do not believe it to be possible to have a satisfactory condition of things from an Empire point of view brought about for its future regulation from the heart of the Empire unless India has representation. Apart altogether from the privilege of having the opportunity of meeting the representatives from India upon this occasion, it is to my mind an epoch-making event, which is in all probability destined to be one of great significance, and I hope of potent value to the Empire as a whole in the years that are to come. The Resolution, the preliminaries to which were discussed at that informal gathering in Sir Robert Borden's room a week or so ago, is one that to a very large extent is more of a general character than a specific one. It is clear to my mind that in our respective countries, at all events in New Zealand, when the Resolution as modified comes up for discussion there, it will be carefully viewed by Members of Parliament, and, through them, by the people of the country. I am quite satisfied that some of the difficulties which in the past have existed and have been almost insuperable will within the limits of this Resolution probably be favourably entertained, and the fact that the representative of India who last spoke was so moderate in his ideas as to what should be done in connection with this matter will be appreciated from the point of view of the public men. I for one—and Mr. Massey has already spoken to the same effect in his remarks which he made this afternoon—will do what I can to see that this feeling of mutual regard, mutual attachment, mutual respect, and mutual service between the Motherland, the great Indian Empire, and the Oversea Dominions is carried forward to a point that will make it valuable for the Empire as a whole and stronger, I believe, for every one of us. I have very much pleasure in supporting the Resolution.

General Smuts: I wish to say a few words, Mr. Chairman, on this subject, especially as the matter of the treatment of Indian immigration in South Africa as you know, has been a cause of constant trouble, not only between us and the Empire of India, but between us and the Colonial Office and the Indian Office. I agree with the former speakers that a departure has been made in this Conference in bringing the representatives from the Empire of India to this Conference, which will go far to obviate the recurrence of such troubles in the future. In South Africa there has been this fundamental trouble, that the white community have been afraid of opening the door too wide to Indian immigration. We are not a homogeneous population. We are a white minority on a black continent, and the settlers in South Africa have for many years been actuated by the fear that to open the door to another non-white race would make the position of the few whites in South Africa very dangerous indeed. It is because of that fear, and not because of any other attitude towards the question of Asia, that they have adopted an attitude which sometimes, I am bound to admit, has assumed the outward form, although not the reality, of intolerance. Luckily we have got over those difficulties. The visit of the late Mr. Gokhale to South Africa did an enormous amount of good. His visit was followed later by the visit of Sir Benjamin Robertson, a distinguished public servant of India, who also assisted the Government to overcome great difficulties on this point some years ago. The result has been the passage of legislation to which both the white and the Indian communities in South Africa agreed. There is still a difference of opinion on administrative

matters of detail, some of which are referred to in the Memorandum which is before us, but I feel sure, and I have always felt sure, that once the white community in South Africa were rid of the fear that they were going to be flooded by unlimited immigration from India, all the other questions would be considered subsidiary and would become easily and perfectly soluble. That is the position in which we are now —that the fear which formerly obsessed the settlers there has been removed; the great principle of restricting immigration for which they have contended is on our Statute Book with the consent of the Indian population in South Africa and the Indian authorities in India, and, that being so, I think that the door is open now for a peaceful and statesmanlike solution of all the minor administrative troubles which occurred and will occur from time to time. Of course the main improvement has been the calling of India to the Council Chamber of the Empire. Here, if any question proves difficult of treatment, we can discuss it in a friendly way and try to find in consultation a solution, and I am sure we shall ever find it. I for one do not consider that, amongst the multitudinous problems which confront us in our country, the question of India will trouble us much in future.

Sir E. Morris: I should just like to say a word in favour of the Resolution. I think it is a distinct gain and a distinct advance, from an Empire standpoint, to have summoned the representatives of India and the Secretary of State for India to this Conference, not alone from the standpoint of being members of the Empire—and a very important portion of the Empire—but from the fact that they have, in a way, established the right to be here, to which I need not refer, as it is now a matter of history. I think the members who have taken part at this Board have very firmly established a claim for very great consideration from not alone the Dominions, but also the mother country. I think that if this departure had been made earlier, if the barriers which seemed to exist, and which some did not understand—the very serious barriers that separate India from the other portions of the Empire—had been removed before, the chances are that, instead of the contribution they have given to the War, they would probably have contributed nearly all the men that would have been required. Then, again, we must be alive to what is taking place in India. A great industrial awakening has just commenced in India, and, when I say "just commenced," I mean in the last few years; but there can be no question in the mind of any one who has studied what is going on in India, that India can never go back to where she was, and that in the very near future a wonderful development is going to take place there, and the good feeling which is now being engendered by this Conference, and especially by this Resolution will, I think, do a great deal to promote the very best feeling. In Newfoundland, which I represent, we are a very small Dominion, and we have never had any restrictions whatever against India as regards immigration, and there is no likelihood of any, because we have probably not had the reasons which have made it necessary for other Dominions in the Empire to consider legislation of that kind. Personally, I am very pleased indeed that this Resolution has been proposed, and, with the other speakers, I feel that great good is certain to come from it.

Chairman: May I put the Resolution? "That the Imperial War Conference, "having examined the Memorandum on the position of Indians in the Self-governing "Dominions, presented by the Indian representatives to the Conference, accepts the "principle of reciprocity of treatment between India and the Dominions, and recom-"mends the Memorandum to the favourable consideration of the Governments con-"cerned."

Will those in favour say "Aye;" on the contrary, "No."—That is carried unanimously.

Address to His Majesty the King.

CHAIRMAN: Before we pass to the next subject-head on the Agenda, may I ask the Conference whether they are prepared to adopt the suggestion which I indicated a few moments ago, and which I propose to make, namely, that we should approach His Majesty the King, and submit a humble request that His Majesty may be pleased to receive us and to accept at our hands an address of loyalty? If the Conference agree, I should propose to move this Resolution:

> "That His Majesty the King be asked to receive the members of the Imperial War Conference now in session, who desire to present a humble address to His Majesty."

If the Conference agree to that, then I propose to read to them a draft of the address which I recommend for their consideration.

Sir ROBERT BORDEN: Mr. Chairman, I at once give my most cordial assent to the proposal. I think that the presentation of such an address by the Conference to the King in person would signalize in a very marked way, and in a very proper way, the important labours on which we have been engaged, and nothing could bring more clearly to the understanding of the people throughout the Empire the importance of those labours than the course which you have just now proposed.

Mr. MASSEY: I agree with Sir Robert Borden. I think the idea that has been suggested is a particularly good one, and should certainly be given effect to. I think it is a splendid thing that the representatives of the Dominions and India should be able to go along to the Sovereign, the King and Emperor, in the great crisis through which they are passing and express their loyalty in the manner proposed. I am only sorry that there is one great Dominion, the Commonwealth of Australia, which is not directly represented here; but, while regretting the absence of a representative of Australia, there is no doubt about the loyalty of the people of that great country—none whatever. It is their misfortune rather than their fault that they have no direct representation on the Conference. So far as I am concerned, Mr. Long, I have no hesitation in giving my cordial and hearty support to the proposal you have made.

Sir JOSEPH WARD: Mr. Long, may I be permitted to congratulate you upon having brought forward this matter, and to say that I do not know of anything at the moment which is so likely to strike the imagination of the peoples in the various portions of the Empire itself, and especially in the Oversea Dominions, as the attachment between the important Empire work of this Conference and the King-Emperor. This is an epoch-making Conference in some respects. We are met in the time of a titanic struggle for the maintenance of the Empire as a whole and the preservation of civilization. We have the representatives of the Indian Empire here for the first time. We have heard the most important proposals indicated by the Prime Minister of this country to-day when he was receiving the freedom of the City of London, and the many important matters to which he alluded there will become a question for active consideration in the various portions of the Empire, and to my mind there is no period in the history of the world, and especially in that which we regard as our own world, that of the British Empire, when the feelings of the people, through their representatives, of loyalty to the King himself were more acute, stronger, and greater than at the present moment. For that reason, I think, the idea that has been suggested of submitting a Resolution to be presented to the King in person is one of great appropriateness, and one with which I am most heartily in accord.

CHAIRMAN: May I take it that the Conference agrees to that Resolution?

The MAHARAJA OF BIKANER: I only wish to say that the sentiment of loyalty and devotion to the King-Emperor personally throughout India is so well-known that I do not think any further or long remarks are necessary from me beyond that my col-

leagues and I, on behalf both of British India as well as of the territories of the ruling Princes and Chiefs, will most heartily welcome and endorse the suggestion which has been made.

CHAIRMAN: May I take it that the Resolution is adopted by the Conference?

Carried unanimously.

CHAIRMAN: This is the proposed address:

"To His Gracious Majesty, King George V, the King of the United Kingdom of Great Britain and Ireland and the British Dominions beyond the seas; Defender of the Faith, Emperor of India: May it please Your Majesty, We, the Members of the Imperial War Conference now in Session, approach your Majesty with an expression of our firm loyalty and that of the peoples whom we represent to Your Majesty's throne and person. Summoned to the centre of Your Majesty's Empire in the midst of the greatest War that has ever afflicted the human race, it has been our privilege to share in the deliberations of Your Majesty's advisers in this country and to review with them the measures necessary to the victorious conclusion of the conflict in which we are engaged. We have further in our Imperial War Conference considered the steps which may be required to ensure that the fruits of victory may not be lost by unpreparedness in the time of peace, and so to develop the resources of the Empire that it may not be possible hereafter for an unscrupulous enemy to repeat his outrages upon liberty and civilization. We shall return to our homes inspired by the magnificent efforts put forth by all classes of Your Majesty's subjects throughout the world, confident that the trials and sacrifices borne in common must draw still closer the bonds of Imperial unity and co-operation, and determined each in his own sphere to leave nothing undone which may attend to the safety, honour, and welfare of Your Majesty and Your Dominions."

I do not know if the Conference think that that address would be in conformity with their wishes, or whether they would like to consider it further.

Sir ROBERT BORDEN: I think it is quite appropriate.

Mr. MASSEY: I think it fills the bill.

CHAIRMAN: Then I will make the due submission to the King. I have already ascertained that it will be the King's pleasure to receive the Conference, and it will only be a case of receiving His Majesty's commands as to the time and place.*

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Notices of Motion.

Sir JOSEPH WARD: May I ask leave to put on record three Notices of Motion which I have given. I want to put them in their sequence in order to have on record the fact that I intended when I gave notice of them to bring them up for discussion and decision. It is not because they are not sufficiently important to be considered that they have not been discussed, but it is because of the fact that time has not admitted of it, and one of them at least would take a considerable time to discuss. I feel it only right in deference to the necessities of time and the convenience of some of the members of the Conference who have to return to their respective countries that these should stand over for future consideration, but I should like to be permitted to put them on record, and have them included in the records of this Conference.

* NOTE.—The Address was presented to His Majesty the King at Windsor Castle on 3rd May, 1917. His Majesty's reply is printed on pp. 173-174.

CHAIRMAN: Yes.

Sir JOSEPH WARD handed in the following Motions:—

Steamship Communications.

"That this Conference re-affirms the Resolutions passed at the Imperial Conferences in 1907, and 1911, that it is desirable that Great Britain should be connected with Canada, and, through Canada, with Australia and New Zealand, by the best mail service available.

"That for this purpose a fast mail service should be established, both between Canada and Great Britain, by the route across Ireland, and on the Pacific between Vancouver, Fiji, Auckland, and Sydney; in the former case by steamers capable of performing the voyage at an average speed of not less than 25 knots, and in the later case of not less than 18 knots.

"That, as soon as the exigencies of the War permit, the necessary harbour accommodation and train ferry arrangements shall be provided on the route chosen.

"That such financial support as may be required to ensure the fastest possible service shall be jointly contributed in equitable proportions by each of the countries that agree to the establishment of such a service."

Cable and Wireless Communications.

"That it is in the highest interests of the Empire that the rates for telegraphic communications between the United Kingdom, Canada, Australia, South Africa, and India should be further materially reduced.

"That there is real necessity for improvement in the news service of the Empire and that it is essential that Imperial news should reach the various countries of the Empire through British rather than foreign channels.

"That in order to ensure generally the cheapest and most secure telegraphic communication between the United Kingdom, Canada, Australia, and New Zealand, it is necessary they should co-operate in the provision of a State-owned cable across the Atlantic and a connecting land line from Nova Scotia to Montreal, which should communicate with the line across Canada now leased by the Pacific Cable Board.

"That it is of vital importance that the United Kingdom, Canada, Australia, New Zealand, South Africa, Newfoundland and India should co-operate in the maintenance and further development of a chain of British State-owned high-power wireless stations within the Empire."

Organization for the Development of Imperial Resources.

"That it is desirable to create a permanent organization representative of all parts of the Empire to investigate, co-ordinate information, and report periodically to the various Governments upon all matters relating to the development of the Empire's resources, the extension of Imperial trade, and the strengthening of Imperial lines of communication."

Concluding Resolution.

CHAIRMAN: That, gentlemen, concludes our business to-day, as I understand.

Sir ROBERT BORDEN: Mr. Chairman, before we separate to-day, I should like to propose a Resolution, which I am sure will command not only the unanimous but the very hearty approval of all the Members of the Conference. It is, of course, unfortunate that we have not had here the advantage of the presence of representatives of the great Australian Commonwealth. We realize, but at the same time we deplore, the necessity which has prevented them from joining with us in our labours, which I think have been of very great importance, and in which we have, in every instance,

arrived at a unanimous conclusion. It is a striking fact that in this Conference every Resolution has been passed by a unanimous vote.

The observations which I desire to make relate to a motion expressing appreciation by the members of this Conference of the labours and the service which the Secretary of State for the Colonies has given to us all. He has had a very long and distinguished career as a parliamentarian, as an administrator, as a statesman. It is but just to say that, in all matters of common concern to the Empire, he has always been characterized by exceedingly wide vision, and by a very full conception of the possibilities to this Empire of a more perfect Imperial unity and co-operation, and at the same time he has always realized the very great difficulties which lie in the path of those who undertake to bring about any great project for that purpose. We know that the Crown Colonies not yet enjoying the full measure of responsible Government, have been the particular care and concern of the Secretary of State, but we also realize that in him the self-governing Dominions have had a good friend and a stout champion in so far as all their interests are concerned; and the very fact that he has possessed and has always shown the wide vision and the great conception to which I have alluded makes it eminently appropriate that he should fill this high office. It is also very appropriate, as has been observed before, that the son of a great statesman, who, perhaps more than any other, impressed upon the imagination of the British people the possibilities of a great Imperial Commonwealth, should be sitting with us around the table as Secretary of State for India.

Perhaps the Secretary of State for the Colonies will permit me to say that we in Canada have felt an especial spirit of sympathy with him, because one who was very near to him indeed, and who has made the great sacrifice for the Empire, was with us in Canada for many years, and it is not too much for me to say, that all who knew him there, not only respected and admired, but loved him as well.* He was one of the finest and truest characters that it was ever my privilege to know, and I am glad that when I was here two years ago I had the opportunity of meeting him on his short leave from France, where he had already so splendidly distinguished himself in the service of his country.

It is through the earnest and assiduous labours of Mr. Long that we have been able to make such good progress and with such gratifying results as we now witness, and I hope all of us realize that, while the labours of this Conference have been pretty severe throughout, they have only formed a small portion of the work which daily had to be undertaken by the Secretary of State for the Colonies and by the Secretary of State for India as well, because they have their departmental affairs and their Parliamentary duties, which call for much of their time and energy. I think it would be quite inappropriate to omit a reference to the officers of the Department of the Secretary of State for the Colonies, who have rendered such excellent service to the Conference—the Parliamentary Secretary, the Permanent Secretary, and especially Mr. Lambert, who, as Secretary of the Conference, has had imposed upon him very heavy duties which he has fulfilled most admirably. We should not forget the Assistant Secretary, Mr. Harding, and Colonel Dally Jones as well, who has been indefatigable in his attendance and in his assistance. In mentioning these names, I do not wish to be understood as overlooking the services and assistance which have been rendered to the Conference by all the officers who have been in attendance and who have aided us so much.

I think we may congratulate ourselves upon the fact that the labours of the Conference have been attended with very useful and important results indeed. In some directions steps have been taken very much in advance of anything that has ever been attempted before. I am confident that in the Oversea Dominions of the Empire, and in the Mother Country as well, these results will be duly appreciated. It is all the more significant that this has been accomplished when we realize that the Conference was summoned on very short notice, that there was very little time indeed for

* Brigadier-General Walter Long, C.M.G., D.S.O., killed in action 28th January, 1917.

preparation, and that the Agenda of subjects for discussion had practically to be taken up and considered after we had arrived in this country. It speaks well for the spirit of co-operation, the desire to serve, which has animated all the members of the Conference, that these good results have been attained, notwithstanding the difficulties to which I have alluded.

I therefore have the greatest confidence in submitting to the members of the Conference this Resolution: "The Members of the Conference representing India and the Oversea Dominions desire before they separate to convey to the Secretary of State for the Colonies their earnest and sincere appreciation of his labours in preparing for and presiding over the Conference. They desire also to put on record their deep sense of gratitude for the many courtesies which they have received from the Prime Minister and the other Members of His Majesty's Government, as well as for the generous hospitality which has been extended to them by the Government and people of the United Kingdom."

Mr. MASSEY: Mr. Long, I wish to second the Motion which has just been moved by Sir Robert Borden, a motion with which I thoroughly concur, and which I heartily support. In supporting it, I may say that about the time the Conference met and for some little time afterwards, I felt doubtful as to its success, and my doubts arose from the fact that, in the case of many Ministers of the Crown in the United Kingdom, their time and attention were fully occupied, and very properly occupied, in assisting to carry on our share of the great War in which we are engaged. My doubts, however, have been dispelled. I am quite satisfied now that we have done good work, and that we have laid a foundation upon which future Conferences representative of the Dominions and India and the United Kingdom, and representative of the Dependencies and gentlemen who may in the future be Secretaries of State for the Colonies representing the Dependencies, will be able to build a great constitutional edifice, consistent with the dignity and importance of the Empire to which we belong. I would like also to say that I think, to those who sit round this table and who have had an opportunity of taking part in the business of the Imperial War Cabinet for the last few weeks, the proof of our success was contained in parts of the great speech which we heard delivered by the Prime Minister to-day in the Guildhall.

I have to say, too, that I am convinced that a great part of our success has been due to the tact and consideration displayed by you, Sir, as President of our Proceedings, and to the courtesy extended to us as representing the Overseas Dominions during the time the Conference has been going on. I think, Sir, that the citizens of the Empire have reason to congratulate themselves upon the calibre of the men who have in years gone by occupied the position which you now occupy, and which you worthily fill—I say upon their calibre, upon their statesmanlike qualities, and upon their wide outlook preparing for the future Imperial possibilities. Sir Robert Borden has referred to a gentleman who has passed away, whose name even to-day is reverenced in the Oversea Dominions; I speak of the Right Honourable Joseph Chamberlain. I may say now—and I am not expressing this opinion because we are privileged to have his son with us at this Conference—that in connection with Imperial matters, I looked upon the Right Honourable Joseph Chamberlain as my Leader, and when my fellow Members requested me to occupy a seat on the Front Opposition Bench in the Parliament of New Zealand, one of my first duties—this is on record—was to second a motion moved by the then Prime Minister expressing the appreciation of the New Zealand Parliament of the great services rendered by the gentleman whose name has been mentioned. I shall never forget that debate; it was one of the most interesting debates in which I ever took part, and many very fine things were said of the gentleman who was then alive, but who, unfortunately for the Empire, has since that date passed away.

I should like, too, to express on my own behalf, and on behalf of the people whom Sir Joseph Ward and I represent here, our sympathy with you, Sir, in the bereavement which you and the other members of your family sustained only a few weeks ago; your son gave his life for his fellow citizens, for his King, and his country, and I need hardly say that the manner of his death was worthy of the very highest traditions of the great Imperial race to which he belonged. I should like to add my tribute on account of the assistance given to us and the courtesy extended to us by the different Government officials, using that general term for want of a better one, who have been present at the meetings held in connection with this Conference.

I have nothing more to say, except that I second the Motion moved by Sir Robert Borden.

General SMUTS: I cordially endorse the remarks which have fallen from the previous speakers.

Sir EDWARD MORRIS: I should like also, Mr. Long, to add my entire support to everything which has been so appropriately said by Sir Robert Borden and by Mr. Massey in relation to your work and that of the gentlemen who have been named.

Sir JAMES MESTON: We, who come from India and are the youngest recruits at this Conference, would like to add our tribute to what has already been said. It is a new, and I may say a wholly unexpected, experience for us that we should be asked to sit at a Conference presided over by the Secretary of State for the Colonies. Some of us were a little apprehensive and a little timorous of the Colonial organization, but that apprehension and those feelings have been entirely dispelled, partly by the great kindness of the Dominions representatives but largely by your own personal care and courtesy for us. We feel we have some reason to think that not only the consideration which we have received here, but the very fact of our presence here, is due to your good will, and we wish to return you our cordial thanks for all that you have done for us during our stay here. We should also like to add our expression of appreciation of the work that has been done for us and the help that has been given us by the permanent officials of the Conference.

Sir JOSEPH WARD: Before you reply, Mr. Long, I would like to add my words of sincere appreciation to you for the courtesy and consideration you have extended to myself among the other gentlemen who are here since my visit to London upon this important occasion. I endorse fully those words which have been so well expressed both by Sir Robert Borden and Mr. Massey as conveying my appreciation of the ability which has been shown by you in connection with the procedure of the Conference. I would like to add my acknowledgment also of the good work done by the officers. It has been to me a matter of very great surprise the regularity with which important and detailed information has come to the whole of us since our arrival in London from the high officials, and those attached to the Conference itself, since the beginning of this Conference. I want to express my warm appreciation for the general courtesy extended to us by the whole of the officials in that respect.

I would like also to add my words of pleasure at the outcome of this last meeting that is going on record from two Prime Ministers, one of Canada, and one of New Zealand, with regard to that portion of the work which appears to me to be starting on a practical road to solution now, which was initiated and put on record all over the world by the late Mr. Joseph Chamberlain. It appears to me to be most appropriate that the distinguished son of a distinguished father should be here on an occasion when the fact that this Conference has affirmed unanimously his views upon the all-important matter of Preference has been indicated by the Prime Minister of this country to-day as the policy which, as I gather from his speech, is likely to be put into practice in the near future after the war. I make this statement because I happen always to have been a supporter of Preference throughout the Empire, and I recollect perfectly well, at the time it was first announced, speaking upon it in our

country, and I have consistently supported something of the kind being carried into practice ever since. So it is on this occasion a matter of very great interest to me that upon the last day of the meeting of this Conference there should be a reference sincerely made to the fact that Mr. Austen Chamberlain is here taking part in a Conference that has been to some extent, I hope, helpful in affirming the views of his late distinguished father in connection with that all-important matter.

I think the occasion is an appropriate one for me to say, with reference to one of the Resolutions which, under your guidance as Chairman of this Conference, has been passed, that I feel persuaded that it will not in the recess be allowed to sink into forgetfulness either on your part or on the part of any one of us. We have passed one Resolution, and I am going to quote a part of it: "The Imperial War Conference are of opinion that the readjustment of the constitutional relations of the component parts of the Empire is too important and intricate a subject to be dealt with during the War, and that it should form the subject of a special Imperial Conference to be summoned as soon as possible after the cessation of hostilities." It may be inappropriate to suggest to Mr. Long anything which he does not conceive to be his duty in connection with a matter of this kind, but I want to say that before the meeting of the present Conference, important as it has been—and it has been very important—there were aspirations certainly on the part of the people of the Dominion from which Mr. Massey and I come that something of that kind in the general interests of the Empire should be done. Owing to the impossibility of doing it as the outcome of this War, and from the information that came before us here, it appeared to be quite right and unavoidable to defer it. In my opinion, whoever may come to the next Imperial Conference—and I hope Mr. Long may continue to occupy the position he holds, and to be responsible for the information going out to the respective Governments—the matter is so important that the representatives of the Overseas Countries ought not to leave their countries to come here without knowing that this is intended to be brought up specially with a view to discussion, however long a time it may take, in order to prevent the possibility after peace comes of altogether too quickly forgetting the circumstance that during the War, from the necessities of the War which stand before us so prominently, its consideration was deferred. There should not be a long lapse of time allowed for men to remain in their own countries for a long time without having as early an opportunity as possible of arriving at some decision upon a matter which I believe to be vital for the future of the Empire itself. I briefly call attention to it as it is a very important matter. There are numbers of people all over the British Empire who so regard it, and I am sure we ought to be able, whoever comes to a Conference in the future, to know that this is one of the matters which the British Government propose should be brought up for serious consideration at the Imperial Conference. I feel it my duty to allude to it, and I would only further say that the work done by the Conference will, on the whole, I think, have good results. I am afraid we have been naturally and unavoidably at times the cause of a good deal of extra work being imposed upon Mr. Long and those who are associated with him, and I want to acknowledge my personal indebtedness to him and to them for the way in which they have made our course easy.

Mr. HAZEN: Mr. Chairman, I should like to add my few words of praise to those which have been uttered by the other members of this Conference. I fully concur in the Resolution that is placed before the Conference which is now under consideration, and with the remarks that have been made by my leader, Sir Robert Borden, and by the Prime Minister of New Zealand with regard to it. It might not perhaps be unfit for me to say that I cordially agree that the Chairman has presided over the deliberations of this Convention with infinite patience, with unfailing courtesy, and with very great ability, and that the promptness with which he has dealt with the different matters that have been brought before us for consideration, and the tact which he has

displayed on all occasions have had very great influence in shortening the proceedings of the Convention, which might otherwise have been extended to very great length.

I would like also to say that I agree fully with what has been said with regard to the pleasure it has been to us, and the advantage it has been to us, of having here as a representative of India, the son of that great Imperial statesman, the late Right Honourable Joseph Chamberlain. I have always been a strong supporter of Preference. I have admired the work which Mr. Chamberlain did in advocacy of that great scheme, which would do so much to promote Imperial unity, in my opinion, and to promote the welfare of the Motherland and of the Dominions beyond the seas which make up the British Empire, and I think we may safely say to-day that the work which Mr. Chamberlain did twenty years ago is bearing fruit, the fruition of which will be seen in the very near future.

While not in any way disagreeing with what has been said with regard to the efficiency of those who have been the officials of this Convention, but on the contrary agreeing with every word that has been said with respect to their competence, courtesy, and ability, might I be permitted to suggest that it might possibly add to the efficiency of future conferences of this description if a portion of the Secretariat at least were composed of officials of the Oversea Dominions, representatives from which meet here for the purpose of considering the different matters that are placed before us. I simply mention that as an idea which has occurred to me, without attempting to elaborate it on the present occasion.

Sir GEORGE PERLEY: Mr. Long, I agree entirely with what has fallen from Sir Robert Borden and other members of the Conference in this connection, and I simply wish to say that perhaps no member of the Conference is in a better position to judge of the way in which you, Sir, have dealt with all matters connected with the Dominions, because in carrying out the duties of High Commissioner here, it has been my privilege and my pleasure to see a great deal of the present Colonial Secretary as well as of his predecessors, and I can bear witness that no one could have been more courteous or kind in dealing with the matters which are brought to his attention, or could have shown greater sympathy with the views and feelings of the Dominions, than Mr. Long has. Therefore I have great pleasure in supporting this Resolution, which, I think, deals with the matter exactly as it should be dealt with.

Sir ROBERT BORDEN: I have moved, and Mr. Massey has seconded, the Resolution which has already been read. Will those in favour signify the same by saying "Aye."

—The Resolution is carried unanimously.

CHAIRMAN: Sir Robert Borden, Mr. Massey, and Gentlemen,—Perhaps you will allow me in the first place to thank Sir Robert Borden very warmly indeed for the reference he was good enough to make to my son. I value that reference and the words he was good enough to employ more than I can describe, because on the record of our Proceedings will go the testimony that the Prime Minister of Canada was good enough to pay to one whom he knew very well, who spent two eventful years of his life in Canada, and of whom Sir Robert Borden has been good enough to express the opinion which he and those who knew him in Canada formed, and which I, as his father, may perhaps be allowed to say I believe is not exaggerated. At all events, this I can say, that through all his life his one object was to do his duty. In the performance of his duty he ultimately gave his life, and I do not think any man, whoever he is, can do more than that during life, or can do more than that when the time comes to make the great sacrifice. I am grateful to Sir Robert Borden for what he said.

Gentlemen, I need hardly assure you that I am very appreciative of the very generous words used both by the proposer and seconder and those who have supported this Motion. I am very conscious of my own innumerable shortcomings, and I confess I approached the task of presiding over this Conference with very great anxiety and no little misgiving, because I felt very much that our Conference would suffer in comparison with preceding Conferences by the absence of the Prime Minister. He is

the President of the Conference, and as a rule presides over, at all events, a great part of the proceedings. Owing to the War, it was impossible to have him in the Chair, and nobody, I know, regretted his absence more than he did himself, unless it be myself; but I am not quite sure that I have regretted it altogether. I have regretted it for your sakes, Gentlemen, but I have not regretted it for my own, because it has enabled me to enjoy an honour and a privilege, the greatest which has ever fallen to me in my life, of presiding over this most representative and most distinguished assembly. Of course I recognize, as we all do, that the absence of Australia has made a great gap, and that consequently the Imperial representation has not been complete. The absence of Australia is due, as we have been reminded to-day, to no fault of Australia's, and to no difference of opinion; it has been due to the unfortunate circumstances which detained the Prime Minister in Australia and made it impossible for him to send a representative. I regret, of course, the absence of Australia, but I believe that in everything we have done we shall have the very cordial support of the Australian Government when they learn, as they will in due course, what our work has been.

Gentlemen, I may be allowed to thank you for your references to my assistants here, upon whose shoulders has fallen the real burden of the work. If you are satisfied with the way in which the Conference has performed its duties and has generally been conducted, that satisfaction is due in the first place to Mr. Lambert, the Secretary of the Conference, who has laboured day and night—I speak quite advisedly—in the performance of his very difficult task, rendered more difficult, as Sir Robert Borden reminded us, by the fact that a great deal of our work came on rapidly during our Session, and that we had not the long weeks and months of previous preparation which is usually the case in connection with Conferences. He has been most ably assisted by Mr. Harding, and I am glad indeed to know that this Conference has been pleased to recognize their labours, and also those of Colonel Dally Jones, the representative of the Imperial War Cabinet, whose assistance—and I speak from my own personal experience—has been of the greatest possible value. May I add that on many occasions when I have required counsel and advice I have always been able to fall back upon the wisdom, ripe judgment, and experience of Sir George Fiddes, who is the head of this great Office.

Gentlemen, will you bear with me for a very few moments—and I promise to be very brief—while I just say a word as to what we have done. I too, in conjunction with those who have spoken to-day, regard the formal inclusion of India in our councils perhaps the biggest step we have made for a very long time. I would like to express my thanks to the Secretary of State for India and to the distinguished representatives from India for the way in which they have aided us in our councils here, and I desire to thank them personally for the immense help they have given to us in conducting our proceedings. Of course it has been of enormous assistance to me to have the Secretary of State for India here, and to have representatives of India at the first Conference over which I have been called upon to preside. It has been to me a very great privilege, which I shall remember as long as I live. I have to thank all the representatives of the Dominions for the rare—I do not know that it is rare, but for the very great splendid generosity which they have shown to me; they have borne with all those shortcomings to which I have referred earlier with a splendid patience and a wonderful resignation, and between us we have managed to conduct our business, I hope, in a businesslike way, and I hope, as I believe, that advantage will accrue to the State. After all, we have dealt with questions such as the Constitution of the Empire, and questions of the greatest importance in regard to trade, and I, for one, hope that in any rebuilding up of the British Empire, trade, industry, and labour will be regarded as three of the most important foundation stones of its future greatness. We have dealt with the question of closer alliance within the Empire by a preferential system; and we have dealt with some minor questions, which, although not of the same

importance, are of very great importance both to the Government here at home and to the various parts of the British Empire throughout the world. I am one of those who firmly believe in Conferences round a table; I believe if you can only get people, however different they may be in their views, or however opposed to each other, once round a table and get them to discuss things in a businesslike way, it is wonderful how difficulties seem to melt and obstacles to disappear, and you arrive at conclusions which, when you started your discussions, you would have thought to be impossible.

I am confident that out of the very close and intimate relations which have existed between us round this table there must grow very rich fruit for the Empire, through those whom we represent, in the future. We learn from each other; we help each other; and I cannot help thinking that our meetings both in the War Cabinet and in the War Conference will tend to bring this War to a more rapid conclusion, and I believe we shall contribute to one of the results which must follow from the War, viz., out of all this sacrifice and suffering—and surely greater sacrifice and greater suffering has never been found in the whole history of the world than this War now tells the tale of, every day adds to it and every day gives us a record of some new deed of heroism and some new and heavy sorrow brought to some fresh home—there must come for the British Empire a greater future. I am one of those who believe that our evolution is none the worse because it is slow and very often illogical. I hope we shall not be too anxious—and this I have ventured to say before, I think—to be in a hurry, but that we shall go rather slowly, though none the less steadily and surely, towards the goal we have in view, viz., the greater consolidation of the Empire for the advantage of the Empire, and for the advantage of all its citizens. I believe that out of all this the Empire will emerge purified by the suffering which she has endured, strengthened by the greater knowledge of her peoples in her different parts, which must result from Conferences like this, consolidated by the efforts which we in this Conference have made and by the work which we have done; if that be true, gentlemen, then surely we may look forward to the time when the Empire will be able to face the world as the determined friend of peace and progress, and the undying enemy of tyranny and lust. It is because I feel our work contributes to this great supreme Imperial end that I am proud indeed to have been permitted to take a humble part in it, and to you, gentlemen, who have been so kind and generous to me as Chairman of this Conference I tender my warmest, my most respectful thanks; and I repeat that as long as I live I shall esteem it the greatest honour of my life that I have been allowed, as Secretary of State for the Colonies, to preside over this great Conference.

Mr. CHAMBERLAIN: Mr. Long, may I add one word of personal thanks to Sir Robert Borden and the other gentlemen who have spoken of my father's work, and who have welcomed me for his sake to this Conference. I am deeply touched by what they said, and it will be very gratifying to my family as well as to myself.

III. PAPERS LAID BEFORE THE CONFERENCE.

I.

The Trade Commissioner Service.

(Memorandum prepared by the Board of Trade.)

[*See discussion reported at pages 21-26.*]

During the discussion on preferential trade at the Imperial Conference of 1907, Sir Joseph Ward called attention to the absence of any official commercial representatives of the United Kingdom in the Self-governing Dominions, and pointed out the need of officers to whom persons desirous of trading with manufacturers in the Mother Country could go for information. Mr. Lloyd George, then President of the Board of Trade, was able to inform the Conference a few days later that His Majesty's Government was arranging for the appointment of officers to investigate trade conditions and requirements in the Self-governing Dominions overseas. Four of these Trade Commissioners were subsequently appointed, one for Canada, one for Australia, one for New Zealand, and one for South Africa; and the purview of the Trade Commissioner in Canada was extended later so as to cover Newfoundland. The appointments made were notified by the Colonial Office to the Governments of the Dominions concerned in July, 1908.

The four Trade Commissioners are officers of the Board of Trade. They have no definite official status or rank in the Dominions in which they are situated, but are instructed to seek, on arrival, introductions to the Prime Minister and to such other Ministers as are likely to be of assistance to them in the furtherance of their duties, and to cultivate cordial relations with the heads of Government departments and with the departments themselves, in order to secure their co-operation.

Experience has shown that the creation of these posts has been of real value in promoting trade between the United Kingdom and the Dominions. The Trade Commissioners supply to the Department of Commercial Intelligence of the Board of Trade a regular flow of commercial information as to openings for British trade; maintain an active correspondence with firms in the United Kingdom who wish to extend their trade with the Dominions; and receive many applications from local importers who wish to enter into business relations with the Mother Country. They return at regular intervals to the United Kingdom in order that they may visit the principal industrial and commercial centres and meet personally firms and individuals interested in trade with the Dominions. Their work has recently been examined by the Dominions Royal Commission during their tour throughout the Empire, and in their Final Report the Commission expressed the opinion that the operations of the Commissioners have been of considerable advantage to British trade.* The Commission have also recommended the appointment of additional Commissioners in the Self-governing Dominions, namely, three in Canada, three in Australia, and two in South Africa, making eight additional appointments in all.

The Board of Trade have also for some time past been contemplating the strengthening of the present Trade Commissioner Service in the Dominions and its extension to other parts of the Empire, and have now decided to provide for a service consisting of sixteen Trade Commissioners in the Empire—an addition of twelve to the present service.

* Pages 144-145 of [Cd. 8462].

The Board have not yet decided definitely on the allocation of the new service throughout the Empire, but they propose provisionally that four Trade Commissioners should be stationed in Canada (one of whom will also deal with trade in Newfoundland); two in Australia; one in New Zealand; two in South Africa; two in India; three in parts of the Empire not possessing responsible government; as well as one Commissioner for special duties, who would have his headquarters at the Board of Trade in London and would be available for special missions. The Trade Commissioners in Canada will probably be stationed at Montreal, Toronto, Winnipeg, and Vancouver respectively; in Australia, at Melbourne and Sydney; in New Zealand, at Wellington; and in South Africa, at Cape Town and Johannesburg. The headquarters of the four Trade Commissioners at present are Montreal, Melbourne, Wellington, and Cape Town. His Majesty's Government are prepared to find the necessary funds for the establishment of this enlarged service, and it is hoped that a beginning may be made with it before the end of the War.

The present Trade Commissioners are not specifically charged with the duty of watching over the trade interests of parts of the Empire other than the United Kingdom, though they are authorized to reply to inquiries from firms in other Dominions and British Possessions. His Majesty's Government would be glad to discuss with the Governments of any of the Dominions who may desire to use the service the best means by which a system of further co-operation can be instituted with a view to making the extended service of Trade Commissioners as useful as possible to the Empire as a whole.

Board of Trade,
March, 1917.

II.

Minute by the Prince of Wales.

[*See discussion reported at pages 28-44 and 94-102.*]

The Prime Minister,—

I have the honour to enclose a memorandum by the Director of Graves Registration and Inquiries with regard to the future development of the Prince of Wales's Committee for the care of Soldiers' Graves. The original intention was that, after the War, this Committee should take over the work of the Directorate. It is, however, pointed out in this memorandum that not only does the Committee now require reconstruction, but that there would be considerable advantage in establishing it on an official basis so that it might forthwith, and within the necessary military restrictions, begin to assume the functions of the Directorate; by this means the danger of a break of continuity in the work on the cessation of hostilities might be avoided.

I understand that it was felt by the Army Council, when proposing the creation of this Committee, that the intimate nature of the work to be undertaken made it desirable to appoint an organization *ad hoc* rather than to entrust this work to one of the existing Government Offices, and that the experience of the Directorate confirms this view.

But the accession to this Committee of the representatives of the Dominion Governments, of the Colonies, and of the Government of India, points to a development of its official status as originally conceived.

The development which seems most suitable to this Committee is that it should now be converted into a Joint Committee of the Governments of the Empire, or into a statutory body of Commissioners somewhat on the lines of the Development Commission. Particulars as to the secretariat suggested are to be found in the annexed memorandum from the Director.

It is thought that, while there is no Imperial office in existence to which such an Imperial Commission or Committee could be properly attached, it would probably be necessary for the sums voted for its use to be shown in the vote of one of the Government offices of the various Parliaments of the Empire. In the case of the United Kingdom, the Treasury or the War Office would be equally suitable for this purpose. But the fact that the War Office has been responsible for the work during the War, and that this work is essentially of a military character, would indicate certain advantages in linking up the Commission with the War Office.

It is therefore suggested that the committee or body of Commissioners should be constituted as follows:—The members should not be more than fourteen in number, and should include the Secretary of State for War, the Secretary of State for the Colonies, the Secretary of State for India, the First Commissioner of Works, or their duly accredited representatives, the High Commissioners of the Self-governing Dominions, the present Director of Graves Registration and Inquiries, and the two Officers Commanding the Graves Registration Units in France and in the East respectively. It is further suggested that the Secretary of State for War should be *ex officio* Chairman of the Committee or Commissioners, and that a Vice-Chairman should be appointed who possesses experience of the military and international aspects of the work of the Directorate during the War.

It is suggested that, if this proposal is approved by the Prime Minister, the opportunity now offered by the meeting of the Imperial War Conference in London should be utilized for obtaining a dicision on the question by the other Governments of the Empire.

The decision which is asked of the Imperial Conference is as to whether the Governments of which it is composed will approve of the creation either of (*a*) an Imperial Joint Committee or (*b*) of a statutory body of Commissioners (with power to appoint advisory committees), of which the Secretary of State for War (Chairman), the Secretary of State for the Colonies, the Secretary of State for India, the First Commissioner of Works, or their duly accredited representatives, and the High Commissioners of the Self-governing Dominions, should be *ex officio* members, together with, say, six other nominees appointed by the King by Royal Warrant, of which the Prince of Wales should be President, and which should be empowered to maintain, through a secretarial staff, all military graves connected with the great War, out of such moneys as may be voted for the purpose by the Governments of the Empire or may be raised by public subscription.

I should like to add that, whatever the decision of the Imperial Conference may be, I hope that every effort may be made to continue without a break the work that has been done during the War. I am glad to have had the opportunity at the front of taking a personal interest in this work.

In looking forward to the time when peace may be restored, the thoughts of all turn instinctively to the honoured dead who rest in many lands across the seas and to whose memory the Empire owes a duty which must never be forgotten. Future generations will judge us by the effort we made to fulfil that duty, and I hope that in undertaking it it will be possible to enlist the representatives of all those who came forward to help the Empire in the hour of need.

I know it will be the special wish of all that those sacred portions of her land which France has generously reserved in perpetuity as the last resting place of so many of our soldiers should be cared for by us in a manner worthy of the honour and dignity of two great nations.

EDWARD P.,
President.
Prince of Wales's Committee for the care of Soldiers' Graves.

WINCHESTER HOUSE,
ST. JAMES SQUARE,
LONDON, S.W.
15th March, 1917.

SESSIONAL PAPER No. 42a

MEMORANDUM BY THE DIRECTOR OF GRAVES REGISTRATION AND INQUIRIES.

The work of the Directorate of Graves Registration and Inquiries and of the Graves Registration Units in the different theatres of war has greatly expanded since the formation of this new branch of the Army early in 1915 under Lieutenant-General Sir C. F. N. Macready, then Adjutant-General to the British Forces in France. There has been an increase in the original branches of the work, the number of graves now registered amounting in France and Belgium alone to more than 150,000, and the Directorate being responsible for graves in Egypt, the Balkans, and Mesopotamia, and for recording those in the United Kingdom; the department which, with the co-operation and advice of the Director of the Royal Botanic Gardens, Kew, undertakes the planting and laying out of the scattered burial grounds, has also been considerably extended, and the International and Imperial aspects of the work have added an altogether new importance to its activities.

1. On the International side, the French Government has, in consultation with the Directorate, passed a law under which the French nation undertakes the whole cost of the provision, in perpetuity, of land for the graves of Allied soldiers in French territory. The administration of this law, so far as British graves are concerned, is carried out under the French Ministry of War by a Commission composed of representatives of the Directorate and the French Army. This Commission has already completed all the arrangements preliminary to acquisition in the case of sixty of the British burial grounds in France, the total number of which is now over four hundred. The Directorate has also conducted negotiations with the Belgian Government with regard to the provision of land in Belgian territory, and there is now every reason to hope, though there has been considerable delay on the part of other British Government departments in accepting the Belgian proposals, that these negotiations will result in an agreement embodying conditions similar to those granted by the French Government.

2. On the Imperial side, the increase in the Dominion forces on the various fronts, and the corresponding casualties, have led the Dominion Governments and military authorities, just as those of India in the earlier days of the War, to take a direct interest in the work of the Directorate. They now look to it as the organization responsible for the registration and care of the graves of Dominion soldiers. All branches of the Directorate have consequently been developed to meet the special requirements of the Dominions and India. The centralization which has thus resulted meets the necessity of having one central authority through which all negotiations with the French and Belgian Governments may be conducted.

3. If arrangements can now be made to ensure that the cessation of hostilities does not cause any break in the continuity of this work, the Empire will be spared the reflections which weighed on the conscience of the British nation when, nearly twenty years after the conclusion of the Crimean War, it became known that the last resting places of those who had fallen in that war had, except in individual instances, remained uncared for and neglected. With such examples as this as a warning, the Army towards the end of 1915 proposed to the Government the appointment of a National Committee for the Care of Soldiers' Graves, which should take over the work of the Directorate after the War. It was felt that the nation would expect that the Government should undertake the care of the last resting places of those who had fallen, but at the same time that relatives would consider that work of so intimate a nature should be entrusted to a specially appointed body rather than to any existing Government Department. The unprecedented extent of our losses also justified a new departure. As a result a Committee was appointed by the Prime Minister in January, 1916, and His Royal Highness the Prince of Wales was graciously pleased to accept the presidency.

But if the Committee is to be ready to take over the work of the Directorate on the conclusion of hostilities, and also for reasons shown below to assume some of its functions immediately, its organization must now be brought into line with the expan-

sion and development of the work of the Directorate. The fact that the Governments of the Dominions have now appointed the High Commissioners to represent them on the Committee, and that the Government of India has in the same way appointed a representative, would alone render such reorganization desirable.

4. The Committee, as originally constituted to care for the graves of British soldiers in France, was recognized as the authority through which these graves would after the War be maintained in perpetuity at the cost of the British Government (*see* paragraphs 1 and 3 in Foreign Office letter, Appendix I.). Beyond this the official status of the Committee has not been determined. It is clear that if it is to administer funds to which the Governments of the Dominions and India, as well as that of the United Kingdom will contribute, it cannot well be made dependent on any department of the Government of the Mother Country alone: on the other hand there is no department responsible to the Governments of all the different States of the Empire to which it could be attached.

There would appear to be two courses by which a satisfactory solution of the problem thus raising might be reached. The first would be to submit the question to the forthcoming Imperial Conference with a view to the Governments represented therein undertaking to maintain a joint committee, financed partly by contributions from those Governments and partly by voluntary subscriptions, and reporting to the Imperial Conference whenever it met. The second would be to create a permanent statutory organization somewhat after the model of the Development Commission. If this second course were adopted, an Act of the Imperial Parliament would probably be necessary to establish a Fund and to authorize gifts to that Fund. Similar Acts might have to be passed by the Dominion Parliaments. Commissioners would then be appointed by Royal Warrant.

In either case the members of the Joint Committee or the Commissioners would be unpaid. A paid secretary would be required and, at first, three assistant secretaries, with the necessary staff. It might also be desirable to appoint a paid chairman or vice-chairman.

As this Commission or Committee would be the development and continuation of a Branch of the War Office, the Secretary of State for War would seem to be the right person to answer for it in Parliament so far as the United Kingdom is concerned. In that case the sums voted by Parliament, or grants in aid, would be shown in the Vote of the War Office. This link with the War Office is desirable. For while it would not interfere with the right of the Secretary of the Commission to direct access to all Government Departments, it would properly mark the military character of the work and the responsibility of the War Office for what had been done during the War, and it would further permanently associate with the War Office a department on which it could call in the case of any future war. The Dominion Governments would also have to appoint a Minister to answer for the work of the Committee or Commission in their Parliaments. I am not in a position to suggest the appropriate Minister in these cases.

The staff required at the outset by the secretary to complete the work of registration and to organize the burial grounds would be gradually reduced, until it was only of such dimensions as were required to supervise the maintainance of the cemeteries and to administer such funds as were necessary for the ceremonial visits which would be paid periodically to the cemeteries abroad and by which the memory of the dead would be honoured and the common sacrifice of the Allies recalled. The services of one of the assistant secretaries, who would be in charge of the department dealing with the completion of registration, identification and records, might be dispensed with when that part of the work was terminated.

5. Though the Committee has been hitherto for the most part dormant, it has held several meetings, at which all questions affecting its future control of the work have been submitted to it by the Directorate for decision. But the time has come when the process of merging the Directorate into a Committee, reconstructed as suggested, might with advantage begin.

Not only are there certain portions of the work which have reached a stage at which they no longer fall necessarily under exclusively military control, and for which the office of the Directorate might now become responsible to the Imperial Commission, but certain functions, such as the study and preparation of a scheme for permanent memorials and the collection of funds for their erection, or at any rate the elaboration of future financial policy, should be exercised by the Commission without delay. The question of permanent memorials, whether of a collective or individual character, the erection of which is at present forbidden owing to military necessities, is so greatly agitating the public mind that there should be no more delay than is inevitable in satisfying public feeling on the question. Isolated appeals for funds in this connection from private individuals or dependent committees have already begun to appear in the newspapers.

If the Government of the United Kingdom, of the Dominions and of India are of opinion that the moral contingencies involved in the inadequate treatment of the graves of those who have fallen demand at least as much attention as the material result of the War, they will undoubtedly consider that the matter ought to be discussed at the Imperial Conference which is about to meet, and a decision in regard to it arrived at.

FABIAN WARE,
Brigadier-General,
Director of Graves Registration and Inquiries.

War Office,
7th March, 1917.

Appendix I.

(110204/217/K.)

Foreign Office,
15th June, 1916.

My Lord,—In my despatch No. 14, Consular, of the 26th of January, concerning the measures to be taken for the care and preservation of the graves of British officers and men who have fallen in France during the present War, I requested Your Excellency to inform the French Government that a British National Committee had been appointed to act as an Association within the meaning of the French law of the 29th of December, 1915, and to take charge of the British graves.

The Government of the Republic have been good enough to nominate three French officers to serve on that Committee, and the names of these officers were duly reported in your despatches Nos. 35 and 42 of the 17th and 31st March.

I have now received from the Army Council a letter in which they ask that the following communication may be made to the French Ministry of War:—

1. "The Prince of Wales' National Committee for the Care of the Graves of British Soldiers" is the "Association régulièrement constituée" in this country referred to in Clause 6 of the French law of 29th December, 1915. On the cessation of hostilities all requests relating to these graves addressed to the French authorities by individuals or societies in this country, will be dealt with by this Committee when referred to it by the French Ministry of War.

2. During the continuance of hostilities the Director of Graves Registration and Inquiries, General Headquarters, British Expeditionary Force, as representative of the Adjutant General, is the sole intermediary between the British Army in the field and the French Military and Civil Authorities in all matters connected with the French law of 29th December, 1915, and all such requests as are mentioned in the preceding paragraph should during the War be referred to him.

3. The British Government will, after the War, through the Prince of Wales' National Committee, undertake the maintenance in perpetuity of the cemeteries and

graves of British soldiers in France under the provisions of Clause 6 of the French law of 29th December, 1915.

4. The Army Council finds it difficult to express in adequate terms its appreciation of the noble and generous impulse which led the French nation to provide, at its own cost, permanent resting places for the British soldiers who have fallen on French soil. The British Army and French Chambers during the debates on the law, and by the statement that France desires "to treat as her own children those who cannot be buried in their native land."

I shall be glad if Your Excellency will address a Note to Monsieur Briand in accordance with the request of the Army Council, and I should wish you at the same time to express on behalf of His Majesty's Government their deep sense of gratitude for the generous feelings by which the Government of the Republic have been prompted, and for the anxiety which they have shown to treat with every respect the remains of those who have perished fighting as Allies on the soil of France.

I am, etc.,

A. LAW,

For the Secretary of State.

His Excellency the Lord BERTIE, P.C., G.C.B., G.C.M.G.

APPENDIX II.

(14722 16.)

TREASURY CHAMBERS,

3rd June, 1916.

SIR,—In reply to Mr. Cubitt's letter of the 1st instant (45/1/2, D.G.R. & I.), I am directed by the Lords Commissioners of His Majesty's Treasury to request you to express to the Army Council their lordships' concurrence in the setting up of the Prince of Wales's National Committee for the care of graves in France and Belgium as the "Association régulièrement constituée," for the purpose of Clause 6 of the French law of the 29th December 1915. My lords agree to the cost upkeep of the graves in France after the War being accepted as a charge on civil votes; and they note that the French Government will provide the land required for the cemeteries free of charge.

I am, etc.,

T. L. HEATH.

The Secretary, War Office.

III

Draft Charter.

Imperial War Graves Commission.

(Original draft and first revise.*)

[*See discussion reported at pages* 28-44 *and* 94-102.]

GEORGE THE FIFTH, by the Grace of God of the United Kingdom, of Great Britain and Ireland and of the British Dominions beyond the Seas King, Defender of the Faith, Emperor of India;

To all to whom these presents shall come greeting:

Whereas it has been represented to Us by Our most dearly beloved son, Edward, Prince of Wales, Knight of the Most Noble Order of the Garter, that the establishment and organization of a permanent Imperial Body charged with the duty of caring for

*NOTE.—The original text, as circulated to members of the Imperial War Conference, is given in ordinary (roman) type, and the alterations agreed to at the meeting of the Conference on April 13 are shown in italic and obliterated type.

the graves of officers and men of Our military and naval forces raised in all parts of Our Empire who have fallen, or may fall, in the present War, and have been, or may be, buried either in foreign countries or in Our dominions, would, by honouring and perpetuating the memory of their common sacrifice, tend *to keep alive the ideals for the maintenance and defence of which they have laid down their lives,* to strengthen the bonds of union between all classes and races in Our dominions, and to promote a feeling of common citizenship and of loyalty and devotion to Us and to the Empire of which they are subjects:

And whereas the Government of the French Republic has made generous provision by law for the grant in perpetuity of land for the graves of all officers and men buried in France belonging to the forces of all foreign States fighting in alliance with the forces of the said Republic, and negotiations are now proceeding, or will hereafter be instituted, on Our behalf with the Governments of other foreign States for similar grants of land for the graves of officers and men of Our said forces who have been, or may be buried in ~~the territory of such State~~: *Belgium, in the Gallipoli Peninsula, in Mesopotamia, in parts of Africa not within Our Dominions, or in any other foreign territory:*

And whereas the objects intended to be promoted by this Our charter have hitherto formed the care of Our Army Council and of a Committee appointed by the Lords Commissioners of Our Treasury, of which Our said dearly beloved son, the Prince of Wales, is the President:

And whereas application has been made to Us by Our said dearly beloved son, the Prince of Wales, to incorporate himself and the persons from time to time holding the several offices hereinafter named, and all other persons who may become members of the said Body as hereinafter provided:

NOW KNOW YE THAT WE, being desirous of promoting the establishment and organization of the said Body, have by Our royal prerogative and of Our especial grace, certain knowledge, and mere motion given and granted, and by this Our charter for Us, Our heirs and successors do hereby give and grant that—

Our said most dearly beloved son, Edward, Prince of Wales, Knight of the Most Noble Order of the Garter:

The persons for the time being holding the offices of—

Our Principal Secretary of State for War;
Our Principal Secretary of State for the Colonies;
Our Principal Secretary of State for India; *and*
First Commissioner of Our Office of Works and Public Buildings;

Such five persons as may from time to time be respectively appointed for that purpose by—

The Government of the Dominion of Canada;
The Government of the Commonwealth of Australia;
The Government of the Dominion of New Zealand;
The Government of the Union of South Africa; and
The Government of Newfoundland.

~~High Commissioner for the Dominion of Canada;~~
~~High Commissioner for the Commonwealth of Australia;~~
~~High Commissioner for the Dominion of New Zealand;~~
~~High Commissioner for the Union of South Africa;~~
~~Such person as may from time to time be appointed for that purpose by the Government of Newfoundland;~~

And all persons who may, pursuant to this Our charter, become members of the Corporation established by this Our charter shall be a Body Corporate by the name of "The Imperial War Graves Commission," with perpetual succession and a

common seal, with power to break, alter, or renew the same at discretion, and with capacity to sue or be sued in their corporate name, and with the further authorities, powers, and privileges conferred and subject to the conditions imposed by this Our charter.

And We do hereby accordingly will, ordain, give, grant, constitute, appoint, and declare as follows:—

I.—Preliminary.

In the construction of this Our charter the following words and expressions, unless there is something in the context inconsistent with such interpretation, shall have meanings hereinafter attached to them; that is to say,

"The Commission" means the Corporation of the Imperial War Graves Commission established by this Our charter.

"Fallen" means died from wounds inflicted, accident occurring, or disease contracted, while on active service, whether on sea or land.

"Person" includes a body of persons corporate or unincorporate.

Words in the masculine gender include the feminine, and words in the singular number include the plural, and the plural number include the singular.

II.—The President.

1. The first President shall be Our dearly beloved son, Edward, Prince of Wales. *In the event of a vacancy in the office of President, from whatever cause arising, such vacancy shall be filled.* ~~On the resignation or death of the President the vacancy shall be filled by~~ the nomination of a successor under the Sign Manual of the Sovereign for the time being.

2. The President shall preside at all meetings of the Commission and of any Committee constituted in pursuance of the provisions of this Our charter at which he may be present.

3. The President shall have power to summon meetings of the Commission at any time he may think fit so to do, in order to submit to the members thereof such matters of importance relating to the affairs of the Commission as he may deem requisite. Such meetings shall be summoned in such manner and by giving such notices as the President may think best calculated to advise the members of the Commission of the time and place of such meetings.

III.—The Members of the Commission.

The Members of the Commission shall consist of the following persons:—

1. The President.

2. The persons for the time being holding the offices hereinbefore mentioned and such *persons* ~~person~~ as may be appointed by the *Governments of Canada, Australia, New Zealand, South Africa, and* ~~Government of~~ Newfoundland, as hereinbefore provided in this Our charter, all of whom shall be styled and are hereinafter referred to as *Official* ~~or official~~ Members.

3. Such other persons, not exceeding the number of six in all, as may from time to time be appointed Members of the Commission by Royal Warrant under the Sign Manual of the Sovereign for the time being.

IV.—Organization.

1. (1) There shall be a Chairman of the Commission who, in the absence of the President, shall preside at all meetings thereof.

(2) The Chairman shall, subject to the power hereinbefore conferred upon the President, and subject to such regulations as may be made by the Commission as hereinafter provided, summon all meetings of the Commission for the despatch of business.

(3) The Chairman of the Commission shall be Our Principal Secretary of State for War.

2. (1) There shall be a Vice-Chairman of the Commission who, in the absence or illness or other incapacity of the Chairman, shall have and exercise the powers and authorities of the Chairman.

(2) The Vice-Chairman of the Commission shall be *appointed by the Commission.*

3. (1) There shall be a Secretary to the Commission, and as many Assistant Secretaries, not exceeding three, as may be necessary for the administration of the affairs of the Commission.

(2) The Secretary ~~shall be appointed~~ *and Assistant Secretaries shall be appointed by the President.* ~~The Assistant Secretaries shall be appointed.~~

(3) The Secretary and Assistant Secretaries shall not be members of the Commission, but the Secretary, or, in the event of his absence, illness, or other incapacity, one of the Assistant Secretaries, shall attend every meeting of the Commission and assist the Commission in the transaction of its business thereat.

4. The Commission shall meet for the despatch of business, and shall from time to time make such regulations with respect to the summoning, notice place, management, and adjournment of such meetings and generally with respect to the transaction and management of business, as they think fit, subject to the following conditions:—

(*a*) The first meeting of the Commission shall be held on such day after the date of this Our charter, and at such place, as may be determined by the President, and, subject to the provisions of this Our charter, the proceedings at any such first meeting of the Commission shall be conducted in such manner as may be directed by the President.

(*b*) The quorum of the Commission shall consist of five members, or such other number as the President, with the concurrence of the Commission, may declare.

(*c*) Every question shall be decided by a majority of votes of the members present and voting on that question.

(*d*) The names of the members present at a meeting shall be recorded, and, upon a requisition made by three or more members voting on that question the names of the members voting on that question shall be recorded.

5. (1) If at any meeting neither the President nor the Chairman nor the Vice-Chairman is present at the time appointed for holding the same, the members present shall choose some one of their number to preside at such meeting.

(2) In case of an equality of votes at any meeting the person presiding at such meeting shall have a second or casting vote.

(3) If any *Official ex-officio* Member is unable to be present at any meeting he may appoint some fit person to represent him at such meeting, and such representative shall be entitled to exercise all the powers and privileges of such member save that he shall not be entitled or chosen to preside at such meeting.

6. The Commission may from time to time delegate all or any of its powers to Committees, consisting of such number of its members as the Commission may think fit, and may appoint the quorum for any such Committee. Such Committees shall have power to make or adopt such rules for the guidance and regulation of the affairs of the Commission specially delegated to them, and as to the holding of their meetings and the conduct of their business thereat, as they may from time to time see fit, subject to the control of the Commission.

7. (1) The Commission may from time to time appoint Advisory Committees, consisting of such persons as the Commission may think fit, to advise the Commission, either permanently or temporarily, on any special subject.

(2) The members of such Advisory Committees shall hold their offices during the pleasure of the Commission. Such Advisory Committees shall have power to make or

adopt such regulations as to the holding of their meetings and the conduct of their business thereat as they may from time to time see fit, but shall obey any directions given them by the Commission as to the exercise of their powers with regard to the subject referred to them.

8. The Commission may from time to time constitute and maintain Agencies in Our Dominions beyond the Seas and in Our Protectorates and in foreign States charged with the duty of aiding the Commission to carry locally into effect any of the purposes of the Commission, and may delegate to any such Agency such of the powers, authorities, and privileges conferred on the Commission by this Our Charter as may be specified in the instrument constituting such Agency.

V.—Purposes and Powers of the Commission.

1. The purposes of the Commission are the following:—

(1) To acquire and hold land for the purpose of cemeteries in any territory in which any officers or men of Our military or naval forces raised in any part of Our Empire who shall have fallen in the present War may be buried.

(2) To make fit provision for the burial of officers and men of Our said forces and the care of all graves in such cemeteries, to erect buildings and permanent memorials therein, and generally to provide for the maintenance and upkeep of such cemeteries, buildings, and memorials.

(3) To complete and maintain records and registers of all graves within such cemeteries.

(4) To make fit provision for the care of all graves of officers or men in Our said forces who shall have fallen in the present War and may be buried elsewhere than in such cemeteries as aforesaid.

2. The Commission is hereby authorized and empowered for the purposes aforesaid from time to time—

(1) To acquire by gift, purchase, or otherwise, and hold and dispose of personal or movable property of every kind in the United Kingdom or elsewhere.

(2) To acquire by gift, purchase, or otherwise, and to hold (without licence in mortmain or other authority than this Our charter) lands in the United Kingdom, not exceeding acres for the purpose of any one cemetery, or acres for the purposes of such offices as may be required by the Commission, and to acquire by the like means and to hold (subject to any local law for the time being in force) lands in any of Our Dominions beyond the Seas, and in any of Our Protectorates, and in any foreign State, for the purposes of such cemeteries or offices as aforesaid.

(3) To provide for the burial in any such cemetery of any such officers or men of Our forces as aforesaid, and to exercise such powers of exhumation and reinterment as may appear to the Commission to be desirable, and as may be approved by the duly constituted local authority in the territory or territories concerned.

(4) To erect and maintain buildings and permanent memorials on or in any such cemetery, to plant trees, shrubs, and flowers therein, to make and maintain all necessary fences, ways, and paths, and to do all such other things as may be necessary for the general maintenance and upkeep of such cemetery.

(5) To permit or to prohibit the erection by any person other than the Commission of permanent memorials in any such cemetery, or in any part of such cemetery, and, where such memorials are permitted, to receive and deal with applications by any persons to erect any such memorial, and to reject any application if the proposed memorial appears to the Commission (whose decision shall be final) to be unsuitable.

(6) To provide for the registration of all graves in such cemeteries, and for the method of keeping all registers or branch registers used for this purpose, and for their inspection by the public, and their safe custody.

(7) To make by-laws, as hereinafter provided, with regard to any such cemetery, subject in every case to the local law of the territory in which such cemetery is situated.

(8) To provide for the care of graves of any officers and men of Our said forces who may be buried elsewhere than in such cemeteries as aforesaid, for the placing of memorials on such graves, for their registration, and for the doing of all such other things as the Commission may think proper with regard to such graves, subject in every case to the local law of the territory in which any such grave may be situated.

(9) To establish and maintain such offices as may be necessary for the work of the Commission,. whether in the United Kingdom or elsewhere, to build or take by gift, lease, purchase, or otherwise suitable buildings for such purposes, and to dispose from time to time of any land and buildings used for such offices when not required for such purposes.

(10) To appoint and employ such officers and servants as may be necessary to carry out the work of the Commission, whether in such offices or in such cemeteries as aforesaid, and whether in the United Kingdom or elsewhere.

(11) To enter into any contract, whether within the United Kingdom or elsewhere, with any of Our subjects, or with the subjects or citizens of any foreign State, with a view to the carrying into effect of any of the purposes or the exercise of any of the powers of the Commission.

(12) To act as the "Association Régulièrement Constituée" for the purpose of the French law of the 29th day of December, 1915, and to have similar authority in relation to any law or agreement of a like nature passed by or made with the Government of any other foreign State, and generally for the purposes of this Our charter to enter into such relations with the Government of any foreign State, or any Body authorized by such Government, as may be approved by Our Principal Secretary of State for Foreign Affairs.

(13) To enter into such arrangements with the Government of any part of Our Dominions beyond the Seas, or of any of Our Protectorates, as may be desirable with a view to the carrying into effect of any of the purposes or the exercise of any of the powers of the Commission.

(14) To do anything not expressly hereinbefore provided for which may be incidental or conducive to the carrying into effect of any of the purposes or the exercise of any of the powers of the Commission.

3. The Commission is hereby specially authorized and empowered from time to time to make by-laws (subject as aforesaid) with regard to the following matters:—

(1) The protection of public health and the maintenance of public decency and order in the cemeteries held for the purposes of the Commission.

(2) The hours for opening and closing such cemeteries and the admission of the public thereto.

(3) The conditions upon which any private memorials, permanent or temporary, may be placed upon graves in such cemeteries.

(4) The duties and conduct of all officers and servants of the Commission in relation to such cemeteries.

(5) The entry of records in all registers kept at such cemeteries, the inspection thereof by the public, and the safe custody of such registers.

(6) Generally, all such matters as pertain to the work of the Commission in connection with the maintenance and upkeep of all cemeteries held for the purposes of the Commission.

VI.—Financial.

1. The Commission is hereby authorized and empowered—

(1) To receive all funds which may be granted annually or otherwise by the Legislature of any part of Our Dominions or any of Our Protectorates in furtherance of the purposes of this Our Charter.

~~(2) To appeal for and receive public subscriptions and donations in furtherance of the purposes of this our charter.~~

(2) ~~(3)~~ To administer all funds which may be given, bequeathed, or granted as aforesaid, or received from *and to receive and administer all other funds which may be given or bequeathed in furtherance of the said purposes or derived from* any other source not hereinbefore mentioned, with power, subject to any such conditions as may be attached to any such grant, gift, or bequest, as aforesaid, to treat all such funds either as capital or income at its discretion.

(3) ~~(4)~~ To establish an Endowment Fund, consisting of such part of its funds as shall from time to time be treated as capital.

(4) ~~(5)~~ To receive the income for the time being produced by the Endowment Fund, and to apply such income and all other the income of the Commission in carrying into effect the purposes of this Our charter.

2. (1) The Endowment Fund established as aforesaid shall be vested in three Trustees, who shall be appointed, with the approval of the President, by the Commission under their common seal, and any vacancy in their number occasioned by death, resignation, or incapacity shall be filled in the like manner.

(2) The Trustees may invest, and change the investments of, any moneys for the time being constituting the capital of the Endowment Fund in such manner, and in and for such securities of such a description as the trustees think expedient.

VII.—General.

1. The Commission may at any time, and from time to time, with the concurrence of the President, apply for and accept a Supplemental Charter, or an Act of Parliament, if it appears to it that such Supplemental Charter or Act of Parliament is required for carrying into effect any of the purposes or powers of this Our charter.

2. No act or proceeding of the Commission, or of a Committee established by the Commission, shall be questioned on account of any vacancy or vacancies in the Commission or any such Committee.

3. No defect in the qualification or appointment of any person acting as a member of the Commission or of a Committee established by the Commission shall be deemed to vitiate any proceedings of the Commission or of such Committee in which he has taken part, in cases where the majority of members parties to such proceedings are duly entitled to act.

4. (1) Any instrument which, if made by a private person, would be required to be under seal, shall be under the seal of the Commission and signed by the proper officer of the Commission. Any notice issued by or on behalf of the Commission shall be deemed to be duly executed if signed by the proper officer; but, subject as aforesaid, any appointment made by the Commission, and any contract, order, or other document made by or proceeding from the Commission shall be deemed to be duly executed either if sealed with the seal of the Commission and signed by the proper officer, or if signed by two or more members of the Commission authorized to sign them by a resolution of the Commission and be countersigned by the proper officer.

(2) The proper officer of the Commission shall be any officer authorized by the Commission to sign such notices and documents as he is required to sign as aforesaid.

VIII.—Annual Report and Statement of Accounts.

1. The accounts of the Commission shall be audited annually by an auditor or auditors, who shall be chartered accountants, and who shall be named by the Governor of the Bank of England for the time being.

2. The Commission shall, once in every year at least, prepare a General Report of their proceedings for the year preceding, and attach thereto a duly certified Statement of Accounts and of the finances of the Commission.

3. *The President shall, on the completion of every such annual General Report and Statement of Accounts forthwith submit the same to Us, and it shall be the duty of the*

Secretary to transmit copies thereof for the information of Governments of such parts of Our dominions as are represented on the Commission or have made grants as aforesaid in furtherance of the purposes of this Our charter. ~~Every member of the Commission shall, on application, be entitled to receive a copy of such Report and Statement.~~

In witness whereof We have caused these Our Letters to be made patent. Witness Ourself, at Westminster, the day of in the seventh year of Our reign.

By Warrant under King's Sign Manual.

IV.

Draft Charter.

Imperial War Graves Commission.

(Second revise.*)

[*See discussion reported at pages* 94-102.]

GEORGE THE FIFTH, by the Grace of God of the United Kingdom of Great Britain and Ireland and of the British Dominions beyond the Seas King, Defender of the Faith, Emperor of India;

To all to whom these presents shall come greeting:

Whereas it has been represented to Us by Our most dearly beloved son, Edward, Prince of Wales, Knight of the Most Noble Order of the Garter, that the establishment and organization of a permanent Imperial Body charged with the duty of caring for the graves of officers and men of Our military and naval forces raised in all parts of Our Empire who have fallen, or may fall, in the present War, and have been, or may be, buried either in foreign countries or in Our dominions, would, by honouring and perpetuating the memory of their common sacrifice, tend to keep alive the ideals for the maintenance and defence of which they have laid down their lives, to strengthen the bonds of union between all classes and races in Our dominions, and to promote a feeling of common citizenship and of loyalty and devotion to Us and to the Empire of which they are subjects;

And whereas the Government of the French Republic has made generous provision by law for the grant in perpetuity of land for the graves of all officers and men buried in France belonging to the forces of all foreign States fighting in alliance with the forces of the said Republic, and negotiations are now proceeding, or will hereafter be instituted, on Our behalf with the Governments of other foreign States for similar grants of land for the graves of officers and men of Our said forces who have been, or may be, buried in Belgium, in the Gallipoli Peninsula, in Mesopotamia, in parts of Africa not within Our dominions, or in any other foreign territory.

And whereas the objects intended to be promoted by this Our charter have hitherto formed the care of Our Army Council and of a Committee appointed by the Lords Commissioners of Our Treasury, of which Our said dearly beloved son, the Prince of Wales, is the President;

And whereas application has been made to us by Our said dearly beloved son, the Prince of Wales, to incorporate himself and the persons from time to time holding the several offices hereinafter named, and all other persons who may become members of the said Body as hereinafter provided:

* NOTE.—This document is the draft charter as finally revised in accordance with the wishes expressed by the Imperial War Conference at its meeting on 23rd April.

NOW KNOW YE THAT WE, being desirous of promoting the establishment and organization of the said Body, have by Our royal prerogative and of Our especial grace, certain knowledge, and mere motion given and granted, and by this Our charter for Us, Our heirs and successors do hereby give and grant that—

Our said most dearly beloved son, Edward, Prince of Wales, Knight of the Most Noble Order of the Garter:

The persons for the time being holding the offices of—

Our Principal Secretary of State for War;
Our Principal Secretary of State for the Colonies;
Our Principal Secretary of State for India; and
First Commissioner of Our Office of Works and Public Buildings;

Such five persons as may from time to time be respectively appointed for that purpose by—

The Government of the Dominion of Canada;
The Government of the Commonwealth of Australia;
The Government of the Dominion of New Zealand;
The Government of the Union of South Africa; and
The Government of Newfoundland.

And all other persons who may, pursuant to this Our charter, become members of the Corporation established by this Our charter shall be a Body Corporate by the name of "The Imperial War Graves Commission," with perpetual succession and a common seal, with power to break, alter, or renew the same at discretion, and with capacity to sue or be sued in their corporate name, and with the further authorities, powers, and privileges conferred and subject to the conditions imposed by this Our charter.

And We do hereby accordingly will, ordain, give, grant, constitute, appoint, and declare as follows:—

I.—Preliminary.

In the construction of this Our charter the following words and expressions, unless there is something in the context inconsistent with such interpretation, shall have meanings hereinafter attached to them; that is to say,

"The Commission" means the Corporation of the Imperial War Graves Commission established by this Our charter.

"Fallen" means died from wounds inflicted, accident occurring, or disease contracted, while on active service, whether on sea or land.

"Person" includes a body of persons corporate or unincorporate.

Words in the masculine gender include the feminine, and words in the singular number include the plural, and in the plural number include the singular.

II.—The President.

1. The first President shall be Our dearly beloved son, Edward, Prince of Wales. In the event of a vacancy in the office of President, from whatever cause arising, such vacancy shall be filled by the nomination of a successor under the Sign Manual of the Sovereign for the time being.

2. The President shall preside at all meetings of the Commission and of any Committee constituted in pursuance of the provisions of this Our charter at which he may be present.

3. The President shall have power to summon meetings of the Commission at any time he may think fit so to do, in order to submit to the members thereof such matters of importance relating to the affairs of the Commission as he may deem requisite. Such meetings shall be summoned in such manner and by giving such notices as the President may think best calculated to advise the members of the Commission of the time and place of such meetings.

III.—The Members of the Commission.

The Members of the Commission shall consist of the following persons:—

1. The President.

2. The persons for the time being holding the offices hereinbefore mentioned and such persons as may be appointed by the Governments of Canada, Australia, New Zealand, South Africa, and Newfoundland, as hereinbefore provided in this Our charter, all of whom shall be styled and are hereinafter referred to as Official Members.

3. Such other persons, not exceeding the number of eight in all, as may from time to time be appointed Members of the Commission by Royal Warrant under the Sign Manual of the Sovereign for the time being.

IV.—Organization.

1. (1) There shall be a Chairman of the Commission who, in the absence of the President, shall preside at all meetings thereof.

(2) The Chairman shall, subject to the power hereinbefore conferred upon the President, and subject to such regulations as may be made by the Commission as hereinafter provided, summon all meetings of the Commission for the despatch of business.

(3) The Chairman of the Commission shall be Our Principal Secretary of State for War.

2. (1) There shall be a Vice-Chairman of the Commission who, in the absence or illness or other incapacity of the Chairman, shall have and exercise the powers and authorities of the Chairman.

(2) The Vice Chairman of the Commission shall be appointed by the Commission.

3. (1) There shall be a Secretary to the Commission, and as many Assistant Secretaries, not exceeding three, as may be necessary for the administration of the affairs of the Commission.

(2) The Secretary and Assistant Secretaries shall be appointed by the President.

(3) The Secretary and Assistant Secretaries shall not be members of the Commission, but the Secretary, or, in the event of his absence, illness, or other incapacity, one of the Assistant Secretaries, shall attend every meeting of the Commission and assist the Commission in the transaction of its business thereat.

4. The Commission shall meet for the despatch of business, and shall from time to time make such regulations with respect to the summoning, notice, place, management, and adjournment of such meetings and generally with respect to the transaction and management of business, as they think fit, subject to the following conditions:—

(*a*) The first meeting of the Commission shall be held on such day after the date of this Our charter, and at such place, as may be determined by the President, and, subject to the provisions of this Our charter, the proceedings at any such first meeting of the Commission shall be conducted in such manner as may be directed by the President.

(*b*) The quorum of the Commission shall consist of five members, or such other number as the President, with the concurrence of the Commission, may declare.

(c) Every question shall be decided by a majority of votes of the members present and voting on that question.

(d) The names of the members present at a meeting shall be recorded, and, upon a requisition made by three or more members voting on a question, the names of the members voting on that question shall be recorded.

5. (1) If at any meeting neither the President nor the Chairman nor the Vice-Chairman is present at the time appointed for holding the same, the members present shall choose some one of their number to preside at such meeting.

(2) In case of an equality of votes at any meeting the person presiding at such meeting shall have a second or casting vote.

(3) If any Official Member is unable to be present at any meeting he may appoint some fit person to represent him at such meeting, and such representative shall be entitled to exercise all the powers and privileges of such member save that he shall not be entitled or chosen to preside at such meeting.

6. The Commission may from time to time delegate all or any of its powers to Committees, consisting of such number of its members as the Commission may think fit, and may appoint the quorum for any such Committee. Such Committees shall have power to make or adopt such rules for the guidance and regulation of the affairs of the Commission specially delegated to them, and as to the holding of their meetings and the conduct of their business thereat, as they may from time to time see fit, subject to the control of the Commission.

7 (1) The Commission may from time to time appoint Advisory Committees, consisting of such persons as the Commission may think fit, to advise the Commission, either permanently or temporarily, on any special subject.

(2) The members of such Advisory Committees shall hold their offices during the pleasure of the Commission. Such Advisory Committees shall have power to make or adopt such regulations as to the holding of their meetings and the conduct of their business thereat as they may from time to time see fit, but shall obey any directions given them by the Commission as to the exercise of their powers with regard to the subject referred to them.

8. The Commission may from time to time constitute and maintain Agencies in Our Dominions beyond the Seas and in Our Protectorates and in foreign States charged with the duty of aiding the Commission to carry locally into effect any of the purposes of the Commission, and may delegate to any such Agency such of the powers, authorities, and privileges referred on the Commission by this Our charter as may be specified in the instrument constituting such Agency.

V.—Purposes and Powers of the Commission.

1. The purposes of the Commission are the following:—

(1) To acquire and hold land for the purpose of cemeteries in any territory in which any officers or men of Our military or naval forces raised in any part of Our Empire who shall have fallen in the present War may be buried.

(2) To make fit provision for the burial of officers and men of Our said forces and the care of all graves in such cemeteries, to erect buildings and permanent memorials therein, and generally to provide for the maintenance and upkeep of such cemeteries, buildings, and memorials.

(3) To complete and maintain records and registers of all graves within such cemeteries.

(4) To make fit provision for the care of all graves of officers or men of Our said forces who shall have fallen in the present War and may be buried elsewhere than in such cemeteries as aforesaid.

(5) To acquire and hold land for the purpose of providing or erecting permanent memorials elsewhere than in such cemeteries as aforesaid in honour of any officers or men of Our said forces who shall have fallen in the present War.

2. The Commission is hereby authorized and empowered for the purposes aforesaid from time to time—

(1) To acquire by gift, purchase, or otherwise, and hold and dispose of personal or movable property of every kind in the United Kingdom or elsewhere.

(2) To acquire, by gift, purchase, or otherwise, and to hold (without licence in mortmain or other authority than this Our charter) lands in the United Kingdom, not exceeding two hundred acres for the purposes of such cemeteries as aforesaid, or five acres for the purposes of such offices as may be required by the Commission, and to acquire by the like means and to hold (subject to any local law for the time being in force) lands in any of Our Dominions beyond the Seas, and in any of Our Protectorates, and in any foreign State, for the purposes of such cemeteries or offices as aforesaid.

(3) To provide for the burial in any such cemetery of any such officers or men of Our forces as aforesaid, and to exercise such powers of exhumation and reinterment as may appear to the Commission to be desirable, and as may be approved by the duly constituted local authority in the territory or territories concerned.

(4) To erect and maintain buildings and permanent memorials on or in any such cemetery, to plant trees, shrubs, and flowers therein, to make and maintain all necessary fences, ways, and paths, and to do all such other things as may be necessary for the general maintenance and upkeep of such cemetery.

(5) To permit or to prohibit the erection by any person other than the Commission of permanent memorials in any such cemetery, or in any part of such cemetery, and, where such memorials are permitted, to receive and deal with applications by any persons to erect any such memorial, and to reject any application if the proposed memorial appears to the Commission (whose decision shall be final) to be unsuitable.

(6) To provide for the registration of all graves in such cemeteries, and for the method of keeping all registers or branch registers used for this purpose, and for their inspection by the public, and their safe custody.

(7) To make by-laws, as hereinafter provided, with regard to any such cemetery, subject in every case to the local law of the territory in which such cemetery is situated.

(8) To provide for the care of graves of any officers and men of Our said forces who may be buried elsewhere than in such cemeteries as aforesaid, for the placing of memorials on such graves, for their registration, and for the doing of all such other things as the Commission may think proper with regard to such graves, subject in every case to the local law of the territory in which any such grave may be situated.

(9) To take such steps as may be necessary under the local law of the territory concerned to enable the Commission to hold any land, other than any such cemetery as aforesaid, for the purpose of providing or erecting any permanent memorial in honour of officers or men of Our said forces who shall have fallen in the present War.

(10) To establish and maintain such offices as may be necessary for the work of the Commission, whether in the United Kingdom or elsewhere, to build or take by gift, lease, purchase, or otherwise suitable buildings for such purposes, and to dispose from time to time of any land and buildings used for such offices when not required for such purposes.

(11) To appoint and employ such officers and servants as may be necessary to carry out the work of the Commission, whether in such offices or in such cemeteries as aforesaid, and whether in the United Kingdom or elsewhere.

(12) To enter into any contract, whether within the United Kingdom or elsewhere, with any of Our subjects, or with the subjects or citizens of any foreign State, with a view to the carrying into effect of any of the purposes or the exercise of any of the powers of the Commission.

(13) To act as the "Association Régulièrement Constituée" for the purpose of the French law of the 29th day of December, 1915, and to have similar authority in relation to any law or agreement of a like nature passed by or made with the Government of any other foreign State, and generally for the purposes of this Our charter to enter into such relations with the Government of any foreign State, or any Body authorized by such Government, as may be approved by Our Principal Secretary of State for Foreign Affairs.

(14) To enter into such arrangements with the Government of any part of Our Dominions beyond the Seas, or of any of Our Protectorates, as may be desirable with a view to the carrying into effect of any of the purposes or the exercise of any of the powers of the Commission.

(15) To do anything not expressly hereinbefore provided for which may be incidental or conducive to the carrying into effect of any of the purposes or the exercise of any of the powers of the Commission.

3. The Commission is hereby specially authorized and empowered from time to time to make by-laws (subject as aforesaid) with regard to the following matters:—

(1) The protection of public health and the maintenance of public decency and order in the cemeteries held for the purposes of the Commission.

(2) The hours for opening and closing such cemeteries and the admission of the public thereto.

(3) The conditions upon which any private memorials, permanent or temporary, may be placed upon graves in such cemeteries.

(4) The duties and conduct of all officers and servants of the Commission in relation to such cemeteries.

(5) The entry of records in all registers kept at such cemeteries, the inspection thereof by the public, and the safe custody of such registers.

(6) Generally, all such matters as appertain to the work of the Commission in connection with the maintenance and upkeep of all cemeteries held for the purposes of the Commission.

4. In the construction of this Part of Our charter the word "cemetery" may or shall include a Hindu or other non-Christian cremation ground, and any action which may be taken in regard to a cemetery under the provisions of this Our charter may be taken in regard to such a cremation ground in so far as may be consistent with Hindu or such other religious customs as may be applicable in the case of any such cremation ground.

VI.—Financial.

1. The Commission is hereby authorized and empowered—

(1) To receive all funds which may be granted annually or otherwise by the Legislature of any part of Our Dominions or any of Our Protectorates in furtherance of the purposes of this Our charter.

(2) To administer all funds which may be granted as aforesaid, and to receive and administer all other funds which may be given or bequeathed in furtherance of the said purposes or derived from any other source not hereinbefore mentioned, with power, subject to any such conditions as may be attached to any such grant, gift, or bequest, as aforesaid, to treat all such funds either as capital or income at its discretion.

(3) To establish an Endowment Fund, consisting of such part of its funds as shall from time to time be treated as capital.

(4) To receive the income for the time being produced by the Endowment Fund, and to apply such income and all other the income of the Commission in carrying into effect the purposes of this Our charter.

2. (1) The Endowment Fund established as aforesaid shall be vested in three Trustees, who shall be appointed, with the approval of the President, by the Com-

mission under their common seal, and any vacancy in their number occasioned by death, resignation, or incapacity shall be filled in the like manner.

(2) The trustees may invest, and change the investments of, any moneys for the time being constituting the capital of the Endowment Fund in such manner, and in and for such securities of such a description as the Trustees think expedient.

VII.—General.

1. The Commission may at any time, and from time to time, with the concurrence of the President, apply for and accept a Supplemental Charter, or an Act of Parliament, if it appears to it that such Supplemental Charter or Act of Parliament is required for carrying into effect any of the purposes or powers of this Our charter.

2. No act or proceeding of the Commission, or of a Committee established by the Commission, shall be questioned on account of any vacancy or vacancies in the Commission or any such Committee.

3. No defect in the qualification or appointment of any person acting as a member of the Commission or of a Committee established by the Commission shall be deemed to vitiate any proceedings of the Commission or of such Committee in which he has taken part, in cases where the majority of members parties to such proceedings are duly entitled to act.

4. (1) Any instrument which, if made by a private person, would be required to be under seal, shall be under the seal of the Commission and signed by the proper officer of the Commission. Any notice issued by or on behalf of the Commission shall be deemed to be duly executed if signed by the proper officer; but, subject as aforesaid, any appointment made by the Commission, and any contract, order, or other document made by or proceeding from the Commission, shall be deemed to be duly executed either if sealed with the seal of the Commission and signed by the proper officer, or if signed by two or more members of the Commission authorized to sign them by a resolution of the Commission and countersigned by the proper officer.

(2) The proper officer of the Commission shall be any officer authorized by the Commission to sign such notices and documents as he is required to sign as aforesaid.

VIII.—Annual Report and Statement of Accounts.

1. The amounts of the Commission shall be audited annually by an auditor or auditors, who shall be chartered accountants, and who shall be named by the Governor of the Bank of England for the time being.

2. The Commission shall, once in every year at least, prepare a General Report of their proceedings for the year preceding, and attach thereto a duly certified Statement of Accounts and of the finances of the Commission.

3. The President shall, on the completion of every such annual General Report and Statement of Accounts forthwith submit the same to Us, and it shall be the duty of the Secretary to transmit copies thereof for the information of the Governments of such parts of Our Dominions as are represented on the Commission or have made grants as aforesaid in furtherance of the purposes of this Our charter.

In witness whereof We have caused these Our Letters to be made patent.

Witness Ourself, at Westminster, the day of in the seventh year of Our reign.

By Warrant under the King's Sign Manual.

V.

Despatch from His Majesty's Ambassador at Paris to the French Minister for Foreign Affairs.

[*See page* 46.]

MONSIEUR LE PRÉSIDENT, British Embassy, Paris, 30th April, 1917.

By a note dated the 17th of June last I had the honour to convey to the Government of the Republic an expression of the deep gratitude of His Majesty's Government for the action of the French Government in providing at its own cost permanent resting places for British soldiers who have fallen on French soil.

Under instructions from His Majesty's Secretary of State for Foreign Affairs, I have the honour to inform Your Excellency that the Imperial War Conference, after consideration of a minute by the Prince of Wales in which His Royal Highness refers in grateful terms to the generosity shown by the French nation in this matter, has placed on record, in a resolution on the subject of the future care of soldiers' graves, its very deep appreciation of the generous action of the French Government in setting apart in perpetuity the land in France where British soldiers are buried.

I have the honour to be, with the highest consideration,

Monsieur le Président,

Your Excellency's most obedient humble servant.

BERTIE OF THAME.

His Excellency
Monsieur Alexandre Ribot,
President of the Council,
Minister for Foreign Affairs.

VI.

Nationality and Naturalization.

(Memorandum prepared in the Home Office.)

[*See discussion reported on pages* 70-78.]

CHANGES IN THE LAW OR PRACTICE.

A distinction must be drawn between those changes which will require amendment, by legislation, of the British Nationality and Status of Aliens Act, 1914, and those which can be effected simply by an alteration of administrative practice.

Legislative Changes.

Legislative changes should, it is suggested, be made only with the assent of all members of the Empire and by legislative methods similar to those by which the Act of 1914 was carried. Separate legislation by any part of the Empire modifying the provisions of that Act is to be deprecated.

Of the various matters relating to nationality and naturalization which have from time to time been discussed in the Press or elsewhere since the outbreak of the War, the following suggested changes which would need legislation are dealt with in this memorandum:—

(A) The introduction of a power to revoke naturalization for any other reason than false representation or fraud. (See Section 7 of the Act of 1914 and Appendix I.)

(B) Certain minor amendments of the Act of 1914 which experience has shown to be necessary. (See Appendix II.)

Administrative Action.

On the other hand, there are certain matters on which changes could be made administratively without any amendment of the existing Act. Such administrative action could, of course, be taken independently in any part of His Majesty's dominions, but, in view of the importance of some at any rate of the changes in question, it would be highly desirable that the practice of all parts of the Empire should in this respect be uniform.

The principal question involved is the refusal to grant certificates of naturalization to subjects of all or any of the Enemy Powers during some period after the termination of the War, and the measures to be taken to meet any attempt by German subjects, if and whenever it may be thought proper to grant them naturalization, to avail themselves of the provision of the Delbruck law, by which in certain cases a German acquiring a foreign nationality is permitted to retain his own. (See (Appendix III.)

Home Office, Whitehall,
March, 1917.

Appendix I.

Revocation of Naturalization.

At the present time the only power in our law to revoke a certificate of naturalization is that conferred by Section 7 of the British Nationality and Status of Aliens Act, 1914, which provides—"Where it appears to the Secretary of State that a certificate of naturalization granted by him has been obtained by false representations or fraud, the Secretary of State may by order revoke the certificate, and the order of revocation shall have effect from such date as the Secretary of State may direct."

Before 1914 there was in our law no power to revoke a certificate once granted. In this respect our law was similar to the laws of all civilized countries, in none of which, so far as can be ascertained, was there any provision for revocation by a Government of naturalization once granted. The French are, however, passing, or have already passed, legislation providing for the revocation by judicial process of certificates of naturalization granted to persons of enemy origin who have preserved their former nationality, and they have revoked by administrative action, under a war statute, 94 certificates out of 758 granted since the 1st January, 1913, to persons formerly subjects of the Enemy Powers.

A revocation of nationality is a serious step, and should be carried into effect only for grave reasons and after inquiry and report by a committee containing some person of judicial experience, and not by merely administrative action. A draft of a Bill to amend the British Nationality and Status of Aliens Act on these lines is annexed.

Two practical difficulties in connection with revocation should be noticed— (1) The status of the wife and minor children, if any, of a person whose certificate is revoked; and (2) the question as to the treatment to be given after revocation to the person affected.

As to (1), the draft Bill proposes that the Secretary of State should deal with each case as may be thought best in the circumstances, and he would doubtless usually

act on the recommendation of the Inquiry Committee. Unless the Secretary of State orders otherwise the wife's nationality will remain unaffected, but she might have an optional power to make a declaration of alienage.

As to (2), the treatment to be given to persons whose certificates are revoked will be determined by the legislation as to aliens in force in the part of the Empire concerned, but it will be remembered that such a person does not, in all probability, retain or recover any other nationality, and the more undesirable his character the less practicable becomes his expulsion from His Majesty's dominions, inasmuch as he will not be a national of any State which is bound to receive him, and no State which has a power to reject undesirables will be open to him. The very great majority of persons of German origin naturalized here have lost their German nationality either, under the old German law, by prolonged absence from Germany, or by formal discharge.

It may be added that, while it is proper and desirable to give effect to the general popular feeling that persons of enemy origin should not be allowed to retain a citizenship to which they have proved themselves disloyal, it is not to be anticipated that the number of revocations that will be necessary will be large.

It is not possible to procure accurate figures as to the number of naturalized British subjects of enemy origin who, being in Germany or elsewhere abroad at the outbreak of war, have actually adhered to the enemy, but the number of cases reported to the Home Office is twenty-five only; in fact a considerable number of such British subjects have been interned by the Germans at Ruhleben. On the other hand, of approximately 6,000* naturalized male British subjects of German, Austrian, or Hungarian origin in the United Kingdom at the outbreak of the War, thirty-five have hitherto been interned as suspect under Article 14 B of the Defence of the Realm Regulations. The number of natural-born British subjects so interned is not greatly inferior to that of the naturalized.

Home Office,
March 1917.

DRAFT OF A BILL TO AMEND THE BRITISH NATIONALITY AND STATUS OF ALIENS ACT, 1914.

BE it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present Parliament assembled, and by the authority of the same, as follows:—

1. The following subsections shall be inserted in the British Nationality and Status of Aliens Act, 1914 (in this Act called the principal Act), after Subsection (1) of Section 7 (which relates to the revocation of certificates of naturalization).

(2) A Secretary of State may also by order revoke a certificate of naturalization in any case in which he is satisfied after such inquiry as hereinafter mentioned that the person to whom the certificate was granted either

(*a*) Has shown himself by overt act or speech to be disloyal to His Majesty, or

(*b*) Has within five years of the date of the grant of his certificate of naturalization been sentenced to not less than twelve months' imprisonment or to a term of penal servitude, or

(*c*) Was not at the date of the grant of his certificate of naturalization of good character, or

(*d*) Has since the date of the grant of his certificate of naturalization been for a period of not less than seven years ordinarily resident out of His

* This figure assumes, what is probably true, that the number remained about the same from 1911, the date of the census, to 1914.

Majesty's dominions otherwise than as a representative of a British subject, firm, or company carrying on business, or an institution established in His Majesty's dominions, or in the service of the Crown, and has not maintained substantial connection with his Majesty's dominions;

and that (in any case) the continuance of his certificate is not conducive to the public good.

(3) An inquiry under this section shall be held by a committee constituted by the Secretary of State, presided over by a person who holds, or has held high judicial office, and shall be conducted in such manner as the Secretary of State may prescribe. The committee shall have power to administer oaths to witnesses or to take evidence by affidavit, and any party to such inquiry may sue out a writ of *subpœna ad testificandum* or a writ of *subpœna duces tecum*. Any such inquiry may relate to the revocation of a certificate of naturalization alleged to have been obtained by false representations or fraud as well as to the revocation of a certificate of naturalization under this section for any other reason.

(4) When a person to whom a certificate of naturalization has been granted in some other part of His Majesty's dominions is resident in the United Kingdom the certificate may be revoked under this section by a Secretary of State with the concurrence of the Government of that part of His Majesty's dominions in which the certificate was granted.

(5) (i) Notwithstanding anything contained in this Act, when a certificate of naturalization is revoked a Secretary of State may by order declare that the wife of the person whose certificate is revoked and any minor children of that person whose names were included in the certificate, or who have acquired British nationality pursuant to the provisions of Section 10 (5) of the Naturalization Act, 1870, shall cease to be British subjects, and such persons shall thereupon become aliens.

(ii) Save as in this section provided, the nationality of the wife and minor children of a person whose certificate is revoked shall not be affected by the revocation, and they shall remain British subjects.

Provided that it shall be lawful for any such wife within six months after the date of the order of revocation to make a declaration of alienage, and on making that declaration she and any minor children of her husband and herself, whose names were included in the certificate, or who have acquired British nationality pursuant to the provisions of Section 10 (5) of the Naturalization Act, 1870, shall cease to be British subjects and shall become aliens.

2. (1) For the purpose of Section 2 of the principal Act a period spent in the service of the Crown may be reckoned as residence in the United Kingdom.

(2) (i) In Subsection (1) (b) of Section 1 of the principal Act the words "or became a British subject by reason of any annexation of territory" shall be inserted, and be deemed always to have been inserted, after the words "had been granted."

(ii) In Subsection (1) of Section 27 of the principal Act the expression "British subject" shall include, and be deemed to have always included any person who by reason of any annexation of territory has become a subject of His Majesty.

(3) In the proviso to Subsection (1) of Section 8 of the principal Act the words "and any proposal to revoke or to concur in the revocation of any certificate" shall be inserted after the words "to be granted."

(4) The following subsection shall be, and be deemed always to have been, substituted for Subsection 2 of Section 27 of the principal Act:—

"Where in pursuance of this Act the name of a child is included in a certificate of naturalization granted to his parent, or where in pursuance of any Act repealed by this Act any child has been deemed to be a naturalized British subject by reason of residence with his parent, such child shall for the purposes of this Act be deemed to be a person to whom a certificate of naturalization has been granted."

3. (1) This Act may be cited as the British Nationality and Status of Aliens (Amendment) Act, 1917, and shall be construed as one with the British Nationality and Status of Aliens Act, 1914, and that Act and this Act shall be cited together as the British Nationality and Status of Aliens Acts, 1914 and 1917.

(2) Copies of the principal Act printed after the passing of this Act, under the authority of His Majesty's Stationery Office, may be printed so as to show the principal Act as amended by this Act.

Home Office,
March, 1917.

Appendix II.

Minor Amendments of the British Nationality and Status of Aliens Act, 1914.

Two years' experience has shown that certain minor amendments, largely of a drafting character, in the Act of 1914 are desirable, and if it is decided to amend the Act at all, as by giving a further power to revoke certificates, advantage might be taken of the opportunity to remedy these slight defects.

The Imperial Conference will probably not wish to be burdened with the details. The amendments proposed and embodied in the draft Bill are as follows:—

(1) Section 2 should be amended so as to allow time spent in the service of the Crown to be reckoned as equivalent to residence in British dominions. At present many aliens have been serving the Crown in France and elsewhere, and their service ought fairly to count with their residence to make up their qualification; this is specially urgent in reference to the condition as to residence in the United Kingdom for twelve months immediately preceding application. The existing rule has prevented the Home Secretary from naturalizing several desirable applicants.

(2) The definition of "British subject" in Section 27 (1) needs amendment so as to cover the case of a person who acquires British nationality by annexation. Possibly a similar amendment should be made in Section 1 (1) (b).

(3) An amendment of the proviso to Subsection (1) of Section 8 appears to be desirable, in order to make it clear that any proposal to revoke or to concur in the revocation of a certificate under the provisions in Clause 1 of the draft Bill must, in the case of a British Possession other than British India or a Self-governing Dominion, be submitted by the Governor to the Secretary of State for his approval.

(4) Section 27 (2) needs amendment so as to include the case of a person who becomes a British subject under the provisions of Section 10 of the Naturalization Act, 1870, by residence with his parents in the United Kingdom.

Home Office,
Whitehall,
March, 1917.

Appendix III.

Refusal of Certificates of Naturalization to Subjects of the Enemy Powers during some period after the Termination of the War, and Special Measures to meet the situation created by the Delbruck Law.

1. These questions have been considered by the Aliens Sub-Committee of the Reconstruction Committee. As to the grant of certificates of naturalization to Germans, their recommendation (with which the Home Office agrees) is to the effect that "the practice which has been adopted in the Home Office since the outbreak of war of refusing naturalization to persons of German nationality might

properly be continued (without any amendment of the law) for a period which might be fixed as five years after the return of peace. The Secretary of State would, however, retain his statutory power to grant certificates in a few exceptional cases, the most numerous of which would be those of widows of British origin who had married Germans, but which would also include cases such as those of men who, or whose sons, had voluntarily enlisted in the British forces. After the expiration of that period of five years, the whole matter should be reconsidered in the light of current events. It might then be found desirable to establish some such rule of administration as that German subjects should not be naturalized in this country unless they had been absent from Germany for some considerable period, say, twenty years, or such other measures, whether legislative or administrative, could be taken as the situation might appear to require.

2. It would certainly be convenient if the practice as to the grant of certificates to Germans could be made uniform, at any rate, in its general lines, throughout the Empire, though in individual cases each authority must be unfettered in its discretion, and it will doubtless be found that exceptions may be made in certain cases especially of opponents of, or refugees from, the Prussian system. For this uniformity, as already explained, administrative action on agreed lines is sufficient; legislation is not required.

3. The question of the grant of naturalization to subjects of Austria-Hungary, Turkey, and Bulgaria is of less importance, and can hardly be settled by the application of any general rule. All the States concerned, and especially Turkey and Austria-Hungary, include subject races the members of which have a special claim on our generosity; there appears to be no reason to suggest that any uniform rule should be laid down for the Empire applicable to the case of subjects of these States.

4. If the uniform administrative policy suggested as to the grant of certificates of naturalization to Germans be adopted, the question of any measures to be taken to meet the situation created by the Delbruck law has little immediate importance.

The observations of the Aliens Sub-Committee of the Reconstruction Committee and their conclusions (with which the Home Office agrees) may, however, be submitted for the information of the Imperial Conference. They are as follows:—

"The German Nationality Law of 1913 (the Delbruck law) makes the acquisition of a foreign nationality one of the causes of the loss of German nationality, but provides at the same time that, if the person naturalized abroad has before naturalization applied for and received the written permission of the competent authorities of his home State to retain his nationality, then his German nationality is not lost. The law also provides that a former German, even if he has not returned to Germany, may be granted direct Imperial nationality.

"In our view it would be impracticable at the present time to enact that no person is to be naturalized in the British Empire who retains foreign nationality. The effect of such an enactment would be to prohibit the naturalization of subjects of Russia, Turkey, and of some other States, and would not in itself prevent the naturalization of Germans. It is true that a new law might be so drafted as to prohibit the naturalization of a subject of any State whose statute law permitted him to obtain authority to preserve his original nationality at the same time that he acquired a new nationality, and a Bill recently introduced by the French Government into the Senate.. .. .. .. actually proposes to amend the French Code in these terms. But if the exclusion of Germans is to be made statutory, it would be simpler to do so by an enactment in which they were expressly named rather than by a provision which makes their exclusion contingent upon the continuance of the Delbruck law in its present form.

"If, however, the object desired is only to exclude from British nationality in the British Empire such Germans as are found to retain German nationality, this could be effected by a modification of our administrative practice without any fresh enactment. If every German applicant for naturalization is compelled to include in his memorial a statement that he has not applied for, or received, and does not intend to apply for, the permission of the authorities of his home State to retain his nationality, then a certificate granted to any such person who does in fact obtain that written permission will have been obtained by false representation, and can at any time be revoked under Section 7 of the Act of 1914.

"The German nationality, as already explained, is retained under the Delbruck law only if before the naturalization abroad the necessary permission to retain has been obtained from the German authorities, and so if an applicant states, when presenting his memorial, that his intention is not to apply for the permission, and in the brief interval before the grant of the certificate does in fact so apply, it will be easy to conclude that his intention was not in fact what he stated it to be, and that the certificate has been obtained by false representation.

"The chance that any person so naturalized would afterwards receive a direct grant of Imperial German nationality while residing in the British Empire appears to us to be remote. That one European State should attempt to exercise sovereignty in the territory of another by a grant of nationality to a person not in its own service would be contrary to international usage, and the attempt is the less likely to be made inasmuch as it would bring no advantage to the naturalizing Power. Such a grant of nationality would not affect the status of the grantee in the British Empire. If it were made openly it would attract at once the attention of the authorities and the case could be dealt with, either under Section 7 of the Act of 1914 (if the circumstances were such as to show that a false representation had been made on the grant of the certificate), or under the measures for revocation proposed in a later portion of this report. On the other hand, if the proceeding were secret, it is hard to conceive what possible advantage could be gained by it; the position of a secret agent would be in no way improved by a surreptitious action, which, if discovered, would at once draw down suspicion.

"If, on the other hand, a person of German origin naturalized in the British Empire returns to Germany and is there renaturalized as a German, he thereby loses his acquired British nationality, and no case of double nationality arises."

The Sub-Committee summarized their conclusion on these points as follows:—

"(1) The question of double nationality, so far as it affects German applicants for naturalization and the general question of the naturalization of Germans, can be dealt with effectually for the immediate future by administrative action without any amendment of the existing law.

"(2) In order to avoid double nationality by naturalized persons of German origin, German applicants should, when their cases are dealt with, be required to make an express declaration to the effect that they have not obtained, and do not intend to apply for permission to retain their original nationality under the Delbruck law.

"(3) The present practice of not admitting Germans should be continued for a period of five years after the conclusion of peace, and after that period the whole matter should be reconsidered."

Home Office,
March, 1917.

Income Tax—United Kingdom and Dominions.

(Memorandum by the Board of Inland Revenue.)

[*See discussion reported at pages* 78-88 *and* 103-116.]

1. The existence within the boundaries of the British Empire of several distinct income taxes imposed by the various Legislatures involves problems which have been discussed at previous Colonial and Imperial Conferences.*

2. In the United Kingdom—where an income tax has been made the mainstay of the revenue—the system adopted from the outset has been based (broadly speaking) upon the twofold principle of charging (*a*) income enjoyed by residents in the United Kingdom wherever it arises, and (*b*) income arising in the United Kingdom.

The Dominions, on the other hand, very generally confine the scope of their income taxes to incomes arising within their own boundaries.

3. It follows that persons resident in the United Kingdom** who derive part of their income from a Dominion may have to pay income tax on that part of their income to the Exchequers both of the Dominion and of the United Kingdom.

4. The only alternative is for one or other (or each) of the Exchequers concerned, to face a loss of revenue.

On what principle, then, should the claims of the respective Exchequers be adjusted. Is the main test to be residence of recipient or source of income? Or is each Exchequer, whilst retaining its own tests, to sacrifice an arbitrary proportion of the tax which would normally be collected?

5. It will be evident that a permanent settlement of the problem presupposes careful examination into principle—failing which it would be quite impossible to determine what form of compromise is least inconsistent with (*a*) the efficiency of an income tax and (*b*) the role attributed to an income tax in the fiscal system of a country.

6. In the case of the United Kingdom income tax, such an examination into principle was on the point of being undertaken by a Committee of Inquiry into the incidence of the Income Tax.† War, however, broke out, and the promised investigation had necessarily to be postponed until the end of the War.

7. The very circumstance which made it impossible to proceed at once with a scientific inquiry into the income tax, tended in itself to accentuate the various problems for the settlement of which such a preliminary examination was essential.

This accentuation was felt by the late Government to justify some action in regard to the subject matter of the present note; and accordingly it was decided that—"as a temporary measure, and without prejudice to future consideration of

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* Colonial Conference, 1907.—Minutes of proceedings of the Colonial Conference, 1907 [Cd. 3523], pages 183-190 and 196-198. Papers laid before the Colonial Conference, 1907 [Cd. 3524], pages 161-167.

Imperial Conference.—Correspondence relating to the Imperial Conference, 1911 [Cd. 5513], pages 7 and 13 (List of subjects for discussion transmitted by the Governor of New Zealand and Governor General of South Africa). Précis of the proceedings [Cd. 5741], pages 68 and 69. Minutes of proceedings [Cd. 5745], page 187 and pages 358-364. Papers laid before the Conference [Cd. 5746-1], page 266.

** The expression "persons resident in the United Kingdom"— in addition to its ordinary significance—includes a company whose seat of management is in the United Kingdom and whose operations are controlled here. The whole business profits of such a company are chargeable with United Kingdom income tax, notwithstanding that the transactions from which those profits are immediately derived may be carried on outside the United Kingdom.

† See statements in the House of Commons by Mr. Asquith on 25th June, 1914 ("Parliamentary Debates," Vol. LXIII, column 2053), and by Mr. Lloyd George on 21st July, 1914 ("Parliamentary Debates," Vol. LXV, columns 386, 387, 388, 389).

the relative claims of the Exchequers of the United Kingdom and of the Dominions "‡—the increase of 1s. 6d. in the £ proposed for 1916-17 in the rate of United Kingdom income tax (i.e., from 3s. 6d. in the £ to 5s. in the £) should not apply in so far as a person pays income tax on the same income both here and in a Dominion.§

8. The arrangement was necessarily devoid of principle, and was admittedly intended as a mere stop-gap measure. But throughout the Budget debates of 1916‖ the Government proceeded on the view that, although examination into principle—the indispensable preliminary to any permanent settlement—could not be undertaken during the continuation of the War, the matter should receive urgent attention on the restoration of peace.

Somerset House,
2nd April, 1917.

VIII.

Letter from the Director-General of the National War Museum.

[*See page* 123.]

National War Museum,
His Majesty's Office of Works, Storey's Gate,
Westminster, S.W.1, 12th April, 1917.

SIR,—The enclosed leaflet is being widely circulated throughout the Navy and the Army. I am instructed by the National War Museum to ask that the attention of the Governors of the Dominions and Colonies in all parts of the British Empire may be called to it, and that it may be sent to them with a covering letter pointing out as follows:—

1. That the National War Museum will be very incomplete if it does not illustrate both by documents and material exhibits the war activities of all parts of the British Empire as well as of British subjects resident in foreign countries.
2. That enemy propaganda has been a very widespread phenomenon, and that the evidences of it from all parts of the world will form an important contribution towards the material to be handled by future historians.
3. That files of important or characteristic journals covering the period of the War will be a valuable contribution to the museum library, as well as all books, pamphlets, and other publications dealing with the War, or with economic or other conditions arising out of it.
4. That illustrative photographic material will be very acceptable.
5. That a branch of the museum is to be devoted to the work of women for the War.

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‡ Financial statement (1916-17), House of Commons Paper No. 50, 4th April, 1916.

§ See section 43 of the Finance Act, 1916, which provides that, where a person who has paid United Kingdom income tax at a rate exceeding 3s. 6d. in the £ has also paid any Colonial income tax in respect of the same income, he shall be repaid—in whole or in part—the United Kingdom income tax in excess of 3s. 6d. in the £. Thus, if the normal rate of United Kingdom income tax is 5s. in the £ and the Colonial rate be 2s. 6d., he ultimately pays 3s. 6d. here; with a Colonial rate of 1s. 6d., again he pays 3s. 6d. here; if the Colonial rate be 6d., he pays 4s. 6d. here.

‖ See "Parliamentary Debates," Vol. LXXXI, column 1057; Vol. LXXXIII, columns 405, 425, 426.

6. That the formation of local committees in as many centres as possible to co-operate with the museum authorities may be a good way to further this patriotic movement.

I am, etc.,

MARTIN CONWAY,
Director-General, National War Museum.

To the Secretary of State
for the Colonies,
Downing Street.

ENCLOSURE IN VIII.

National War Museum.

The War Cabinet has accepted the proposal of Sir Alfred Mond (First Commissioner of Works), to establish a museum in London commemorative of the War. The needful preliminary steps having been taken and a nucleus organization set up, it is necessary to obtain the co-operation of every member of the fighting forces of both services at the earliest possible moment. Only by such co-operation can the desired result be attained. His Majesty the King has been pleased to express his sympathy with the proposed war museum, and he trusts that it may be made thoroughly representative of the achievements of all units engaged in the War, both in the combatant and non-combatant services.

The museum, beside in the first instance illustrating as fully as possible the operations of the Navy all over the world and of the Army on all the fronts, will be so arranged as to set forth the activities and accomplishments of the several units, and special attention will be paid to the record of ships and regiments. There will be sections devoted to the forces of each of the Dominions. There will also be a section illustrative of women's work.

By private and public initiative similar enterprises have been set on foot, in Allied and in Enemy Countries. It is not desirable that the historian of the future should have to go abroad to pursue his studies in German museums through lack of material provided at home. The length of time that has already passed since the beginning of the War and the consequent transfer into private hands of countless memorials of priceless value for the future, render the generous co-operation of such owners essential. This is specially true in respect of documents of all kinds. Life on shipboard and in the trenches produces a transient literature and art of its own. The museum should possess all the ship and trench magazines, journals, poems, popular songs, characteristic private letters, writings, sketches, caricatures, maps, and so forth. The Admiralty, the War Office, and the Ministry of Munitions will deposit in the museum the large mass of official exhibits, but such an assemblage will be a dead accumulation unless it is vitalized by contributions expressive of the action, the experiences, the valour, and the endurance of individuals. The brave men who have performed heroic deeds, and too often laid down their lives for their country in the performance, must be commemorated by their portraits. The photographic record of persons and places must be as complete as possible.

Much that would have been of great value to the national collection is already destroyed; more is in imminent peril of destruction. A general co-opération is needed to preserve everything that can be saved. Models of particular parts of the front are made to serve needs of the day and cast aside when they have performed their purpose. Every one of them is wanted. Men employ their enforced leisure in making all kinds of memorials; gifts of such representative souvenirs will be valued. The light side of things should be illustrated as well as the frightful tragedy of war.

When peace returns and men are back at home, the years will pass and memory of the great days and adventures through which they lived will grow dim. It is the purpose of the museum to be a place which they can visit with their comrades, their friends, or their children, and there revive the past and behold again the great guns and other weapons with which they fought, the uniforms they wore, pictures and models of the ships and trenches and dug-outs in which weary hours were spent, or of positions which they carried and ground every yard of it memorable to them. They will then be glad to recall also the occupations of their hours of leisure. They will be able to look up the likenesses of the men they knew, some of whom, it may be, fell fighting beside them. The best possible result will be desired by all. Let all co-operate heartily and it will be attained.

MARTIN CONWAY,
Director-General of the National War Museum.
Temporary Offices,
His Majesty's Office of Works,
Storey's Gate,
Westminster, S.W.1.

IX.

Note on Emigration from India to the Self-Governing Dominions.

[*See discussion reported on pages* 126-129.]

1. This question was discussed at the Imperial Conference of 1911, when the Secretary of State for India (the Marquess of Crewe) put in a memorandum, subsequently published [Cd. 5476—1 of 1911]. The only legislation of importance since then was the South Africa Immigration Act of 1913.

2. While none of the Dominions has mentioned natives of India as prohibited immigrants, the several Dominions (except Newfoundland*) have effectually guarded themselves against an influx of Asiatics. Australia and New Zealand impose an educational test upon immigrants, while Canada and South Africa have taken power to exclude immigrants belonging to any race deemed unsuitable as residents. South Africa has issued instructions to immigration officers that Asiatics are "unsuitable"; Canada has not. In practice Canada excludes Indians by insisting that all immigrants shall have come by through ticket on continuous journey from their country of origin, a provision hitherto effective because there has been no direct steamer service. In addition, Canada insists that each Asiatic immigrant must possess £40 ($200) (unless he belongs to a country as to which special statutory regulations are in force, or with which there is a special agreement). From an Imperial point of view, the flaw in the Canadian system is that it puts Japanese in a far better position than British Indian subjects. Japan has secured this by agreeing to limit emigration of the labouring class to Canada to four hundred a year.

3. South Africa has, by an administrative order, absolutely shut the door to fresh immigration from India, with the important exceptions that one lawful wife (with her minor children) of any domiciled Indian who has not already a wife in South Africa has the right of entry, and that the Union Government has promised to admit by special permit as many as twelve educated Indians each year.

4. In Australia and New Zealand, Indians who do not know the English language are unable to fulfil the educational requirements of the laws. In Australia, however, an Indian who knows English perfectly can be excluded for want of knowledge of some

* Which has differentiated against Chinese only.

other European language. (This provision is applicable to immigrants of any race except the British.)

5. Thus all the Dominions are secured against an influx of uneducated Asiatics.

6. In each Dominion the Government has power to admit individual immigrants (who would otherwise be excluded) by permit. In Canada, apart from special permits, tourists, students, teachers, and certain other educated persons, do not come within the scope of the immigration laws. In the other Dominions they do, and their admission depends on the decision of the Minister in each individual case.

7. Each Dominion allows the return of Indians who have acquired domicile, subject to the necessary precautions to prevent personation or forgery.

8. South Africa (with a large permanent Indian population) differs from the other Dominions in allowing (subject to strict precautions) any Indian who has acquired the right of residence to bring his wife and his young children from India to take up permanent residence. In Australia and New Zealand the absence of any such provision does not appear to have caused resentment on the part of Indians, but much political capital has been made out of the matter as regards Canada. Here there are hardly any Indian women (the men having entered, unaccompanied by women, before the promulgation of the Orders in Council which in effect prevent any fresh Indian immigration). The Dominion Government does not insist upon the possession of $200 by the wives of domiciled Indians, but the "continuous journey" provision in practice makes it impossible for the women to come. Much has been made in India of this grievance, though it is very improbable that in practice more than a dozen or so Sikhs of the labouring classes would wish to bring over their wives, especially since the Indian community in British Columbia has become so much smaller. The efforts made to do so were probably inspired by political agitators, who wished to, and did, produce cases which aroused sympathy. But the average Sikh, ready to travel all over the world to make money, does not in the least wish to be hampered by a helpless wife. Resident Japanese may introduce not only their families but domestic servants, so that the differentiation against British Indians is very marked.

9. As regards the temporary visits of Indians of good position, the various Dominion laws allow persons with good credentials to enter (in Canada, as "tourists," and elsewhere by special permits). Although educated Indians chafe at the necessity of suing for permission to enter the Dominions, while all British subjects can enter India freely, it is difficult to make any positive suggestion. Sympathetic action on the part of immigration officers might go far to mollify the sense of grievance undoubtedly felt by educated Indians. The grievance might be more effectually remedied if each Dominion Government were to empower an agent or agents of its own, resident in India, to issue permits to visit the Dominion, to Indians with good credentials, for specified purposes. Whether such an arrangement would be practicable is a matter for consideration.

10. The Indians settled in the Dominions make complaints from time to time on various points, such as the absence of political equality with full citizens. Such matters are entirely within the discretion of the several Governments, and need not be discussed. But it is of importance to note that the biased administration of municipal regulations as to the grant of trading licenses may in practice inflict more injury on individual resident Indians than do some statutes against which Indians have protested.

11. It is quite recognized that some Indians resident in the Dominions have put forward claims in the direction of requests for the Parliamentary franchise and for the recognition of non-Christian marriage systems which no Dominion Government could grant without danger to the character of its own institutions, and have thus weakened their requests for remedy of more material grievances. The argument for allowing resident Indians who possess the necessary educational

and property qualifications a vote in municipal elections—where this does not already exist—is based not only on the fact that they are taxed for municipal purposes, but on the obvious consideration that their safeguards for equitable treatment from municipal officials in such matters as the issue of licenses would be enhanced by their possession of votes.

12. As regards the Parliamentary franchise; it has been argued in Natal in the past that Indians, as coming from a country that did not enjoy representative institutions, were not fitted for a Parliamentary vote. But the extension of the representative character of Legislative Councils in India has certainly modified the force of this argument, at least in its application to Indian merchants. The franchise, as regards the status of non-European races, differs considerably in the several provinces of the Union of South Africa, and in this, the only one of the Self-governing Dominions in which an Indian vote would have much political influence, the question of the admission of Indians to the Parliamentary franchise could not be entirely dissociated from very difficult questions of the political status of African natives. It does not appear to have been noticed that while any one from the Dominions is free to enter and do business in British India, and is eligible for appointment to the Indian Services, no non-official Canadian or Australian, for instance, who takes up his residence in India acquires any voice in the government of the country, except in so far as he may happen, on account of his business, to become one of the electors for the representation of the special interests (such as Chambers of Commerce, or tea planters in Assam) in the Legislative Councils.

13 It is common ground that Indians of any class who have been allowed to acquire residential rights in the Dominions should be accorded equitable treatment. It is not yet admitted except by South Africa that Indian men who have acquired residential rights should be allowed to introduce women of their own race. The objection, no doubt, is that Canada, Australia, and New Zealand consider it undesirable to have a permanent Asiatic domiciled community such as exists in South Africa, though Canada, in fact, has allowed the foundation of a permanent Japanese colony. On the other hand, the constant charges of sexual immorality made against Indians, and the fears expressed as to undesirable miscegenation, show the unnatural position produced where Indians who have been allowed to acquire a domicile are not allowed to lead a normal family life.

14. The embargo against unlimited immigration of Indians of the labouring classes is understood in India, though not popular. But the provisions which, while not preventing the visits of educated Indians, put upon them the onus of proving to Dominion officials that they do not belong to prohibited classes, are undoubtedly a cause of much friction, and have helped to create in Indian political circles a very strong feeling of hostility to the Dominions. While the Government of India have always felt great difficulty about any arrangements under which they would be called upon to decide as between individual educated Indians who should be allowed to go to any Dominion, it is recognized that by making an arrangement of this kind Japan has been able to come to a settlement with Canada which puts Japanese in a privileged position.

15. To attain a settlement of these grievances it is necessary to recognize, in the first place, that they are in a great measure matters of settlement. Indians, in their outlook upon the Empire, are at present powerfully swayed by two ideas. They are proud of the fact that they are British subjects and their country an integral portion of the Empire. They wish to claim their Imperial privileges, and they do not understand why, on the ground of race, they are unfairly excluded from large tracts of the Empire, and worse treated in some matters than Asiatics who do not belong to the Empire, while (until the passing of the new United States immigration law) they have not met with unfavourable differential treatment in the territories of foreign Powers. They are at the same time proud of their Indian nation-

ality, of their ancient civilization, and of the great intellectual traditions which they have inherited. They are deeply moved by treatment which imputes to them ignorance or implies denial of these titles to respect. They have made sacrifices for the Empire; they have proved their loyalty, their courage, and their fortitude; and they ask that this should be recognized. Thus sentiment and imagination enter largely into the controversy. If the Dominions would make concessions which would meet feelings of this order, they would probably find that India would not be unreasonable on material points. The unrestricted opening to India enterprise of any territory acquired from the enemy in East Africa would, it is believed, remove some of the bitterness which this controversy has engendered in the minds of Indian publicists and politicians by the proof it would give that in the disposal of territories accruing to the Empire as a result of the War the needs of the Indian peoples have not been overlooked.

16. With these principals in mind, it is suggested that the basis of an agreement might be sought on the following lines:—

(1) As regards Indians already permanently settled in the Dominions they should be allowed to bring in wives (subject to the rule of monogamy) and minor children, and in other respects should not be less privileged than Japanese settled immigrants.

(2) Future admissions of Indians for labour or settlement should, if possible, be regulated on lines similar to, and not less favourable than, those governing the admission of any other Asiatic race.

(3) If this is not possible, there might be reciprocal treatment in India and each Dominion of immigration for purposes of labour or permanent settlement. If a Dominion is determined to exclude these two classes of immigration from India, India should be free to do the same as regards that Dominion. It would be clearly recognized that the exclusion in either case was not motived by prejudices of race, but was the outcome of different economic conditions.

(4) Along with such exclusion reciprocal arrangements would be made for granting full facilities for the admission of tourists, students, and the like, and for business visits entailing temporary residence, so long as this residence was not for labour purposes or for permanent settlement.

India Office,
22nd March, 1917.

X.

Reply from His Majesty The King to the Address from the Imperial war Conference.

(*See pages* 130-131).

I thank you for your loyal and dutiful Address, which I profoundly appreciate. Since my Accession I have realized the sincerity of the loyal affection to my Throne and Person shared by all classes throughout the Empire, and it has afforded me special gratification to receive to-day a testimony to such feelings from you as the Representatives of my Dominions beyond the seas and of India now gathered together in the heart of the Empire.

You have met me at an historic moment in our Empire's story. I am confident that the result of your deliberations will be of great and lasting advantage, not only in helping to bring the present War to a victorious conclusion, but to ensure

that when peace is restored we may be found prepared for the tasks which then await us in the organization of the resources of the Empire with a view of rendering it more self-sustaining, and in strengthening the ties that knit together all parts of my dominions.

It has afforded me the utmost satisfaction that Representatives of India have been Members of your Conference with equal rights to take part in its deliberations. This meeting round a common board, and the consequent personal intercourse, will result in the increasing growth of a spirit of larger sympathy and of mutual understanding between India and the Overseas Dominions. Your present gathering is a giant stride on the road of progress and Imperial development, and I feel sure that this advance will be steadily continued.

I deeply regret that, owing to unavoidable circumstances, it has not been possible for the Commonwealth of Australia to be represented at the present Conference. But that great Dominion stands second to none in determination to do all in its power to assist in the tremendous conflict in which the Empire is engaged. I trust that, when the next Conference meets, it may be attended by representatives from all over the Dominions and India.

In the midst of the present terrible struggle the magnificent contributions in men, munitions, and money made by all parts of my Empire have been a source of the greatest pride and satisfaction to me. Vast armies raised in the Dominions have taken or are taking, the field side by side with those of the United Kingdom to fight the common foe in the cause of justice and of those free institutions which are the very keystone of my Empire. It is fitting also that I should here specially refer to the munificent gifts of money made towards the expenses of the War by the Government, Princes, and Peoples of India. May this comradeship in the field, this community of suffering and sacrifice, draw together still closer than ever all parts of my Possessions, establishing fresh bonds of union that will endure to our mutual advantage long after the War and its horrors have passed away.

The Queen and I recall with the liveliest and happiest recollections the visits which we have been privileged to pay to the different parts of my dominions beyond the seas, thereby gaining personal knowledge of the various countries and peoples, of their resources and difficulties, and of all their varying problems and interests.

We do not forget the warm-hearted and loyal welcome given to us on those occasions, and it is with feelings of affectionate regard that I ever follow the welfare of my subjects beyond the seas. I look forward to the day when some of our children will, in their turn, have an opportunity of acquiring similar priceless experience by such visits.

I rejoice in the prospect of better means of communication which will more effectively link up the various portions of my Empire, and I trust that the days to come will see an ever-increasing exchange of visits and personal intercourse between the Mother Country and the Overseas Dominions. For do not sympathy and common brotherhood help to form the surest foundations on which a State can rest?

The value of Empire lies not in its greatness and strength alone, but in the several contributions that each of its diverse parts, with their varying circumstances and conditions, makes to the one general stock of knowledge and progress.

I thank you for coming here personally to present your Address to me. May God bless and protect you all, and grant you safe return home at the conclusion of your labours.

Correspondence Relating to the Withdrawal of the Ross Rifle from the Canadian Army Corps.

[44]

OTTAWA, March 30, 1916.

PERLEY, Dominion,
London.

We have ordered * * * Ross Rifles of which * * * have been delivered, and delivery of balance will not be completed before * * * . We are considering giving an order for an additional * * * but before deciding we desire to obtain any available information and advice from British Government. It is said that they have an order for * * * rifles placed with an organization controlled by * * * at * * . * * * visited these works and was greatly impressed with progress made. Possibly these rifles would cover our requirements if war should continue for more than a year.

BORDEN.

LONDON, April 26, 1916.

PRIME MINISTER,
Ottawa.

Your cable 30th ultimo. Minister Munitions presumes firm referred to is * * * with whom Imperial Government have contract for * * * rifles. Deliveries not yet commenced and probability is contract will not be completed by * * *. Minister adds there will be no surplus from British orders other than that already allotted * * *. Regrets therefore not in position to allocate from British orders any rifles to Canadian Government. Desirable not place contract with * * * in view work for Imperial Government.

DOMINION.

LONDON. May 12, 1916.

GENERAL HUGHES,
Ottawa.

Serious situation has arisen regarding Ross rifle * * * . I request that you will show this telegram to Prime Minister.

AITKEN.

OTTAWA, May 15, 1916.

MAX AITKEN,
London.

Have consulted with General Hughes and we are prepared to leave matter to judgment of Commander in Chief after he has had all necessary tests of both rifles under such conditions as are experienced at front. Men making tests should be of like experience. * * * It is only arm we are equipped to produce in Canada at present and we believe it effective if properly used. Minister informs me that reports just received of recent official tests in England thoroughly demonstrate efficiency of our rifle.

BORDEN.

From the Governor General to the Secretary of State for the Colonies.

OTTAWA, June 5, 1916.

Secret. Following from Prime Minister for Sir William Robertson. *Begins.* By reason of rumoured dissatisfaction with Ross rifle, I held consultation with General Hughes on 15th May, and sent unofficial message to Commander in Chief that we were prepared to leave matter to his judgment after making all necessary tests of both rifles under such conditions as are experienced at the front. We suggested that men making tests should be of equal experience. Ross rifle is only arm we are equipped to produce in Canada at present, and we believe it efficient if properly used, but are content to abide by judgment of Commander in Chief after thorough investigation and adequate tests. We realize absolute necessity of two conditions: first, that men shall be armed with thoroughly efficient rifle; second, that their confidence in such rifle shall be unshaken. Please let me have your judgment as to proper course to pursue.

OTTAWA, June 5, 1916.

PERLEY, Dominion,
London.

Confidential. Please ask Colonial Secretary to show you my secret cable to-day for Chief General Staff respecting Ross rifle, and confer with Aitken to whom you may disclose terms of that message.

BORDEN.

OTTAWA, Ont., June 5, 1916.

PERLEY, Dominion,
London.

Secret. Please ascertain whether British Government have finally and definitely decided on new rifle, or whether they propose before final action to study lessons obtained in present war. If new type of rifle has been finally adopted we are prepared after suitable investigation to adopt it if found satisfactory, so that our rifle in future will be of same type as British. In that case British order for Ross rifle might be cancelled and new order for one hundred thousand rifles new type given instead. Cost of machines and gauges for new type of rifle would approximate five hundred thousand dollars, and this cost might be equally divided between two Governments. Am making this suggestion because of continual criticism of Ross rifle which undoubtedly creates lack of confidence. No rifle, however efficient, is useful unless it commands thorough confidence of men.

BORDEN.

LONDON, June 8, 1916.

PRIME MINISTER,
Ottawa.

* * * War office considers except trajectory the new Lee-Enfield now being made in United States is as good as any weapon that could be made with present experience and in present war apparently high trajectory no particular disadvantage. Lessons

obtained in present war have evidently not brought any new experience so far as rifles are concerned. Not considered possible say definitely what rifle will be finally adopted by British Government after war. Hardly to be expected that War Office would, under present circumstances, definitely commit themselves regarding their future service rifle. Master General Ordnance considers rifle now being made for them in United States exceedingly good weapon and would be glad see you use same pattern. Question of money arrangements would have to be taken up officially, but personally should consider that of minor importance.

PERLEY.

LONDON, June 8, 1916.

PRIME MINISTER,
Ottawa.

Confidential. Have shown and discussed with Aitken your secret cable to Chief General Staff. Question will now doubtless be settled by him. Have seen him personally to-day and impressed strongly as possible upon him your views regarding necessity thorough test and also that Canadian Government would need official documents giving full facts and statements which could be made public if thought desirable. Also impressed upon him that Ross rifle is only one which Canada can produce at present, and that if our troops are re-armed at front it naturally would raise question whether Canada should continue manufacturing Ross rifle, and if not some alternative feasible plan would have to be suggested. Showed him copy your cable 5th regarding new type rifle, which I answered this morning. Whole question will doubtless be thoroughly considered within next few days.

PERLEY.

Secret.

Paraphrase of cypher telegram from Mr. Bonar Law to the Governor General.

LONDON, June 10, 1916.

The following is from Chief of the Imperial General Staff.

Begins,—I am much obliged for your telegram 6th June. It has been referred to Sir Douglas Haig, and his reply is awaited before any opinion can be given. *Ends.*

BONAR LAW.

OTTAWA, ONT., June 24, 1916.

PERLEY, Dominion,
London.

Most confidential. Secret. We have had under consideration since January last an order for one hundred thousand additional Ross rifles, none of which can be delivered before April, 1917. If we decide to order the additional one hundred thousand, company requires nearly a year's notice before commencement of delivery in order to secure necessary material of various kinds, for which there is great demand at present. Several months ago the Master General of Ordnance strongly recommended immediate action but we have delayed by reason of doubts raised as to efficiency of rifle. Time has

now arrived when immediate decision should be made. To this end it is important that we should have a definite, reliable, and thorough report upon the merits of rifle. If it is so defective as to forbid its use at the front, or if confidence in its efficiency has been undermined in our troops, it would be a waste of public money to give further orders. Please consult Aitken, with whom I have had much correspondence on this subject, and advise me whether any such report as above mentioned exists. If not, it should be made immediately for our guidance.

BORDEN.

London, July 5, 1916.

Prime Minister,
Ottawa.

Your cable 24th ultimo. Have communication from War Office covering letters recently received from Commander in Chief armies in France who reports efficiency Ross rifle thoroughly tested by actual fighting in field, that he has again consulted General Officer Commanding Second Army in case fresh points have come to light during recent heavy fighting by Canadians near Ypres. Latter states his experience working Ross rifle during last fight has only confirmed his opinion that Canadians in Third Division have lost confidence in their rifle, and he recommends that rifles this division be exchanged. Sir Douglas Haig remarks that although reports from Second Division not to same effect he is of opinion Lee-Enfield rifle should be issued to all three divisions Canadian Corps. Army Council agree with this opinion and have approved his proposal to exchange rifles Second and Third Divisions for Lee-Enfield pattern, and steps will be taken forthwith effect exchange. Army Council hope be able utilize Ross rifles released from France, also those in possession Canadian troops England, for other purposes connected with war. They would be glad if steps could be taken stop any more Ross rifles being brought to England, it being understood they thereby make themselves responsible for supplying necessary rifles to Canadian troops on arrival here, and they see no reason to doubt being able do this. Army Council add should Canadian Government be desirous undertaking manufacture rifle of different pattern suitable for use during present war, in their opinion rifle made same pattern as now produced in United States for British Army, which is on lines Lee-Enfield Mark III, embodying improvements, probably best one to adopt. Mailing copies correspondence. War Office wishes this matter regarded as secret until July 15.

PERLEY.

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19 Victoria Street, London, S.W., July 5, 1916.

Dear Sir Robert Borden,—I beg to confirm my cablegram of to-day, reading as follows:—

> "Your cable twenty-fourth ultimo. Have communication from War Office covering letters recently received from Commander in Chief armies in France who reports efficiency Ross rifle thoroughly tested by actual fighting in field, that he has again consulted General Officer Commanding Second Army in case fresh points have come to light during recent heavy fighting by Canadians near Ypres. Latter states his experience working Ross rifle during last fight has only confirmed his opinion that Canadians in Third Division have lost confidence in their rifle and he recommends that rifles this division be exchanged. Sir Douglas Haig remarks that although reports from Second Division not to

same effect he is of opinion Lee-Enfield rifle should be issued to all three divisions Canadian Corps. Army Council agree with this opinion and have approved his proposal to exchange rifles Second and Third Canadian Divisions for Lee-Enfield pattern and steps will be taken forthwith effect exchange. Army Council hope be able utilize Ross rifles released from France, also those in possession Canadian troops England for other purposes connected with war. They would be glad if steps could be taken stop any more Ross rifles being brought to England, it being understood they thereby make themselves responsible for supplying necessary rifles to Canadian troops on arrival here and they see no reason to doubt being able do this. Army Council add should Canadian Government be desirous undertaking manufacture rifle of different pattern suitable for use during present war in their opinion rifle made same pattern as now produced in United States for British Army which is on lines Lee-Enfield, Mark Three, embodying improvements probably best one to adopt. Mailing copies correspondence. War Office wishes this matter regarded as secret until July fifteenth."

I now think it well to send you, for your information, copy of a letter, which I addressed to General Sir W. R. Robertson, the Chief of the General Staff, on the 26th ultimo, in which I pressed to be provided with official documents and papers, on which any action taken by the Army Council was based, that could be made public. As the result I received an official letter from the War Office, dated the 3rd instant, covering certain documents as specified therein. Copies of the whole of these are attached hereto.

You will observe that the War Office communication is marked "Secret," which defeated the object in view. However, I took this matter up personally with General Von Donop, Master General of the Ordnance, and was informed that it was necessary that the documents should be treated as secret for at least a limited period. In their view the restriction on publication should extend until the 31st July, but on my pressing for some curtailment they agreed to this restriction being reduced to the 15th instant, and I therefore included this proviso in my cablegram to you.

Yours very truly,

GEORGE H. PERLEY.

19 Victoria Street, London,

June 26, 1916.

Dear Sir William Robertson,—With reference to the cablegram sent to you on June 6th by Sir Robert Borden, through the Governor General of Canada and the Secretary of State for the Colonies, regarding which I had the pleasure of a conversation with you, a few days afterwards, I understand that you have in the meantime been having the question of the Ross rifle carefully considered in order to arrive at a decision as to whether our troops at the front should be re-armed with the Lee-Enfield. I hope that before deciding this important question you may arrange to have a thorough test made of both rifles under service conditions so that a definite report regarding them may be available as requested by Sir Robert Borden.

This would seem to be the most satisfactory way, but at the same time Sir Robert Borden has authorized me to inform you that the Government of Canada is prepared to leave the question of re-arming the Canadian troops entirely to the judgment of the War Office, and if they decide that no further tests are necessary or advisable it is prepared to accept and support their judgment. While, however, the Canadian Government will so support you during this time of war we feel that the War Office

have and must accept full responsibility for any action they may take, and particularly for any decision that a further test is not wise or necessary.

As this is a question of the utmost importance to Canada, we would ask you to provide us with the official documents and papers on which any action you may take is based, and which we can make public. I have seen General von Donop several times on this subject, and understand that the War Office have been in communication regarding it with Sir Douglas Haig, Commander-in-Chief in France. All such correspondence should be made available for our use, and we should be provided with as full a statement of the facts as possible.

As you know, the Ross rifle is the only one which we can produce in Canada at present, and if our troops at the front should be re-armed with the Lee-Enfield such a decision would naturally raise the question as to whether Canada ought to continue manufacturing the Ross rifle, and if not what alternative practical plan could be suggested. I think it is very necessary that the War Office in considering the whole question should remember this situation and advise the Canadian Government what action in their opinion should be taken regarding a future supply. In Canada any large orders for rifles have to be given a long way ahead and it usually requires nearly a year's notice before the commencement of delivery for the purpose of enabling the company to secure the necessary materials of various kinds for which there is of course a great demand at present. During the last six months the Canadian Government had had under consideration the giving of a further order for a large number of rifles to be delivered in 1917, but this has been delayed on account of the rumoured dissatisfaction with the Ross rifle, referred to in the Prime Minister's cablegram to you of June 6. The time has now, however, arrived when an immediate decision must be made and the Canadian Government hopes that the War Office will have a thorough and reliable report regarding the merits of the rifles, on which such decision could be based. If the Ross rifle is really not the best for active service work, or if our troops have lost confidence in its efficiency, we would certainly not keep on manufacturing it. I ask, therefore, that the War Office advise us fully and give us their opinion regarding this.

Sincerely yours,

GEORGE H. PERLEY.

Secret.

WAR OFFICE,
LONDON, S.W., July 3, 1916.

The HIGH COMMISSIONER
For the Dominion of Canada,
17 Victoria Street, S.W.

SIR,—I am commanded by the Army Council to forward for the information of the Canadian Government, copies of two letters dated 28th May, 1916, 21st June, 1916, recently received from the General Officer Commanding in Chief, the armies in France, on the subject of the Ross rifle, the second of these letters being in response to a War Office letter, forwarding to General Headquarters, France, a copy of the secret telegram dated 7th June, 1916, from the Governor General of Canada to the Secretary of State for the Colonies.

It will be remembered that in June, 1915, Sir John French reported that he had ordered the re-arming of the Canadian Infantry owing to the two facts:—

(1) That the Ross rifle could not be relied upon to work smoothly with the ammunition then available.

(2) The want of confidence in the Ross rifle which a large number of the

Canadian Infantry felt as evidenced by the fact that 3,000 of them had re-armed themselves with Lee-Enfield rifles taken from casualties on the battlefield.

(A copy of this report is attached marked "G.")

Subsequent to this an alteration was made to the rifles in existence and those under manufacture by which it was hoped to get over the defect mentioned at (1).

In view of the opinion now expressed by Sir Douglas Haig, the Army Council agree with him that the efficiency of the Ross rifle has been fully tested in the field and they have, after due consideration, approved his proposal to exchange the rifles of the 2nd and 3rd Canadian Divisions for the Lee-Enfield pattern, and steps will be taken forthwith to carry out the exchange.

I am to say that in the circumstances the Army Council hope to be able to utilize the Ross rifles released by the troops in France, and also those now in possession of the Canadian troops in England, for other purposes connected with the war, but they would be glad if steps could be taken to stop any more rifles of this pattern being brought to England, it being understood that the Army Council would thereby make themselves responsible for supplying the necessary rifles to the troops from Canada on arrival in England, and they see no reason to doubt their being able to do this.

I am commanded to add in response to the request contained in Sir George Perley's letter of the 26th inst. to Sir William Robertson that, should the Canadian Government be desirous of undertaking the manufacture of a rifle of a different pattern than the Ross, and suitable for use during the present war, and wish for the Army Council's opinion on this subject, it is thought that a rifle made to the same pattern as that now being produced in America for the British Army would probably be the best one to adopt. This rifle is on the lines of the Lee-Enfield Mark III, but has had embodied in it many improvements which have been arrived at in connection with a new pattern rifle which the Army Council were about to adopt just before the outbreak of war.

I am, sir, your obedient servant,

B. B. CUBITT.

Secret.

GENERAL HEADQUARTERS,
BRITISH ARMY IN THE FIELD, May 28, 1916.

The SECRETARY,
War Office,
London, S.W.

SIR,—I have the honour to inform you that I have satisfied myself, after extensive inquiries carried out throughout the Canadian corps, that, as a service rifle, the Ross is less trustworthy than the Lee-Enfield, and that the majority of the men armed with the Ross rifle have not the confidence in it that it is so essential they should possess. The inquiry on which these conclusions are based was the outcome of an urgent application from a battalion of the 3rd Canadian Division for re-armament with the short Lee-Enfield rifle, in consequence of a high percentage of jams experienced with their Ross rifles during a hostile attack on the 1st May, 1916.

2. I am accordingly of opinion that the 2nd and 3rd Canadian Divisions should be re-armed with the short Lee-Enfield rifle. It will be remembered that the 1st Canadian Division was so re-armed on 12th June, 1915.

3. I am not in a position to effect this with the means at my disposal in France. I have the honour to inquire, therefore, whether the necessary number of rifles can be supplied from home sources, without interfering with, or delaying, the arrival and arming of the divisions due from England and Egypt on which I am relying.

I have the honour to be, sir,

Your obedient servant,

D. HAIG, General,
Commanding-in-Chief,
British Armies in France.

Secret.

Q.O.S. 141/2/A.

From the General Officer Commanding-in-Chief,
British Armies in France.

To the Secretary,
War Office, London, S.W.

GENERAL HEADQUARTERS, June 21, 1916.

SIR,—In reply to your No. 77/15/5307 (M.G.O.) of 10th June, 1916, forwarding a copy of a telegram dated June 7, from the Governor General of Canada, I have the honour to inform you that the efficiency of the Ross rifle has been thoroughly tested by actual fighting in the field, and the application conveyed in my O.B./174 of May 28, 1916, was made after very careful consideration of all the evidence available.

2. I have again consulted the General Officer Commanding Second Army in case any fresh points have come to light during the recent heavy fighting by the Canadians near Ypres. He tells me that his experience of the working of the Ross rifle during the last fight has only confirmed him in his opinion that the Canadians, in the 3rd Division at all events, have lost confidence in their rifle, and he recommends that the rifles in this division be exchanged.

3. Although the reports from the 2nd Division are not to the same effect, I am of opinion that the Lee-Enfield rifle should be issued to all three Divisions of the Canadian Corps.

I must therefore adhere to my recommendation that the 2nd and 3rd Canadian Divisions should be re-armed with the short Lee-Enfield rifle, and I would urge that the necessary steps to give effect thereto be taken without delay.

I have the honour to be, sir,

Your obedient servant,

D. HAIG, General,
Commanding-in-Chief,
British Armies in France.

WAR OFFICE, LONDON, S.W., June 10, 1916.

77/15/5307. (M.G.O.)

SIR,—I am commanded by the Army Council to forward herewith a copy of a telegram received from the Governor General of Canada, and to state that they would be glad to receive your opinion on the points raised in it, together with the results

of any tests carried out in France. The Army Council would like to be informed whether you consider the tests already carried out sufficient and if not, they would ask that further tests should at once be made in order that there may be no delay in dealing with the question.

I am, sir, your obedient servant,

The General Officer,
Commanding in Chief,
British Armies in France.

Secret.

Paraphrase telegram from the Governor General of Canada to the Secretary of State for the Colonies. (Received Colonial Office 6 a.m., 7th June, 1916.)

Secret. June 6. Following from Prime Minister for Chief of General Staff, War Office. *Begins*: On account of rumoured dissatisfaction with Ross rifle I held a consultation on May 15 with General Hughes and sent unofficial message to Commander in Chief saying that we were prepared to leave the matter to his judgment after making all necessary tests of both rifles under such conditions as are experienced at the front. We suggested that the men carrying out the test should be of equal experience. The Ross rifle is the only arm we are at present equipped to produce in Canada, and we believe it to be efficient if properly handled, but are content to abide by the Commander in Chief's judgment after thorough investigation and adequate tests. We realize the absolute necessity of two conditions, viz.: (1) that our men shall be armed with thoroughly efficient rifles, and (2) that their confidence in such rifles shall be unshaken. Please favour me with your judgment as to the proper course of action to take.

ARTHUR.

O.S./141/2.

Confidential.

From the Field Marshal, Commanding in Chief,
British Army in the Field.

To the Secretary,
War Office, London, S.W.

General Headquarters, June 19, 1915.

Sir,—I have the honour to acknowledge receipt of War Office letter No. 77/15/5209 (A. 5), dated 16.6.1915, regarding the action taken by me in the matter of the Ross rifles of the Canadian Division.

2. The circumstances are as follows:—

I had heard rumours that there was a growing want of confidence in this rifle, as evidenced by the fact that the infantry of the Canadian Division were taking every opportunity of exchanging their rifles with those of the Lee-Enfield pattern from casualties on the battlefield.

3. To satisfy myself whether there was any real justification for this state of affairs, without at the same time lending encouragement to the idea that the Ross rifle was unsatisfactory, such as might have resulted from an investigation by the divisional authorities, I gave instructions for the assembly of a small committee at my General Headquarters to test the rifle with the various natures of ammunition in use, including ammunition of Canadian manufacture, of which a small supply was obtained from England for the purpose, none having been sent out to this country for use with the rifle.

4. The proceedings of this committee were laid before me on the eve of a serious offensive operation in which the Canadian Division was to take part, and I was at the same time informed that over 3,000, or more than one-third, of the infantry of this division had already succeeded in rearming themselves with the Lee-Enfield rifle without any authority having been given for them to do so.

Looking:

(1) to the unanimous opinion of my committee that the Ross rifle could not be relied upon to work smoothly and efficiently in rapid fire with any ammunition other than that of Canadian manufacture;

(2) to the fact that no ammunition of this nature was available in this country, and that sufficient supplies could not be obtained from England; and

(3) to the want of confidence in the rifle which a large number of the infantry evidently felt, as evidenced by the fact that over 3,000 had, without authority, exchanged their rifles for those used by their British comrades, and taken from casualties on the battlefield;

I did not feel justified in sending this division into battle with the Ross rifle, and ordered the re-arming of the infantry of the division with the Lee-Enfield rifle, which was carried out before they went into action on 15th instant.

5. As regards the suggestion made by the Army Council that the opinion of one or two selected Canadian officers should be obtained, I submit that this is a difficult and complicated question which can only be satisfactorily settled by the best expert opinion, and that the views of a few selected Canadian officers, who may or may not be prejudiced in the matter, will not be of any material assistance.

6. I would, therefore, suggest that the Army Council should send to this country one or more of the most highly qualified experts obtainable to make the necessary tests under service conditions, and report whether ammunition of British manufacture is or is not suitable for use with the Ross rifle. For this purpose a supply of ammunition of Canadian manufacture should be brought out for comparison.

The Army Council can then decide whether, looking to all the circumstances, it is advisable to restore the Ross rifle to the Canadian Division.

7. In conclusion, I would observe that in my reports I have never condemned the Ross rifle, nor have I any sufficient data to justify me in doing so.

I have expressed and acted on my opinion that, so far as I can judge, the ammunition of British manufacture is not suitable for use with Ross rifle, and that there is a large and growing feeling of want of confidence in their rifle on the part of the men in the Canadian Division, which is amply justified by the report of the committee.

8. Owing to the difficulty at present experienced in turning out rifles in sufficient numbers for our requirements, I shall most heartily welcome an authoritative statement which will carry conviction to the men that their apprehensions are unfounded, or what may possibly be found more easy of attainment, viz., a slight alteration to the chamber of the rifle which will better adapt it for use with our British ammunition.

I have the honour to be, sir,

Your obedient servant,

J. D. P. FRENCH.

Paraphrase of cypher telegram, Mr. Bonar Law to the Governor General.

London, July 11, 1916.

With reference to my telegram June 10. Report from General Officer Commanding in Chief in France has now been received by Army Council recommending

that Second and Third Canadian Divisions should be re-armed with short Lee-Enfield rifles, and Army Council have approved this. They hope to be able to utilize Ross rifles released and also those now in possession of Canadian troops in England for other purposes connected with the war, but ask that no more Ross rifles should be brought to England. Army Council will be responsible for supplying necessary rifles to Canadian troops on arrival in England. If your Government desire to undertake manufacture of different rifles suitable for use during war, Army Council think that rifles now being produced in America for British Army on lines of Lee-Enfield Mark III but with improvements would be best.

Despatch follows mail.

No objection to publication of all the above information after 15th July.

BONAR LAW.

LONDON, July 11, 1916.

Sir ROBERT BORDEN,
Ottawa.

I am authorized by Secretary of War to inform you as follows: Quote. "Since outbreak of war improved type of Lee-Enfield Rifle has been adopted and manufactured under orders of the British Government. With a view to uniformity the Lee-Enfield Rifle has been offered to Canadian Government for Canadian troops at the front. It is expected that negotiations will be carried on in immediate future between British Government and Governments of Dominions with a view to securing for all His Majesty's forces throughout the Empire a uniform type of service rifle. Doubtless all existing facilities for production of rifle in Overseas Dominions will be utilized for manufacture of new service rifle when adopted."

AITKEN.

OTTAWA, July 17, 1916.

DEAR SIR GEORGE PERLEY,—I beg to acknowledge the receipt of your letter of the 5th instant, respecting the Ross rifle.

Yours faithfully,

Sir GEORGE PERLEY, K.C.M.G.,
Ottawa, Canada.

Confidential (6)

DOWNING STREET, July 12, 1916.

SIR,—With reference to my telegram of the 11th instant, I have the honour to transmit to Your Royal Highness, to be laid before your Ministers copies of letters which have passed between the War Office, the High Commissioner for Canada, and the General Officer Commanding in Chief, British Armies in France, on the subject of the Ross rifle.

2. The Army Council state that there would be no objection to the publication of the correspondence after the 15th instant.

I have the honour to be, sir,

Your Royal Highness' most obedient humble servant,

A. BONAR LAW.

GOVERNOR GENERAL,
His Royal Highness
The DUKE OF CONNAUGHT AND OF STRATHEARN, K.C.,
K.T., K.P., etc., etc., etc.

For despatch from the Field Marshal Commanding in Chief, British Army in the Field, to the War Office, dated June 19, 1915, see page 9.

For letter from General Haig, dated May 28, 1916, see page 7.

For War Office letter dated June 10, 1916, see page 8.

For paraphrase telegram from the Governor-General of Canada to the Secretary of State for the Colonies, see page 9.

For despatch from the General Officer commanding in Chief, British Armies in France, to the War Office, dated June 21, 1916, see page 8.

For letter from War Office, dated July 3, see page 6.

From Governor General to Colonial Secretary.

OTTAWA, August 30, (31), 1916.

Secret. In pursuance of your cable message of July eleventh my advisers announced that Canadian troops at front would in future be armed with Lee-Enfield rifles. They are confident that no departure from this decision has been made without their knowledge but they desire to be informed as to report which has reached them that Fourth Canadian Division was armed with Ross rifle when recently despatched to France.

Paraphrase of cypher telegram, Mr. Bonar Law to Governor General.

LONDON, September 7, 1916.

Your telegram August 31st: Fourth Division were sent to France armed with Ross rifles but Lee-Enfield have since been sent to France for purpose of re-arming. Re-arming should be completely performed by now.

BONAR LAW.

Orders in Council respecting the establishment of National Service Board.

P.C. 2351.

[46]

AT THE GOVERNMENT HOUSE AT OTTAWA.

THURSDAY, the 5th day of October, 1916.

PRESENT:

HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

His Royal Highness the Governor General in Council, under the provisions of the War Measures Act, 1914, is pleased to make the following regulations respecting National Service, and the same are hereby made and enacted accordingly.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

REGULATIONS RESPECTING NATIONAL SERVICE.

1. The Governor in Council may appoint a Director General of National Service (hereinafter called the Director General) who, under the Prime Minister shall be charged with the duty of directing, supervising, and co-ordinating the work of the Directors of National Service hereinafter mentioned.

2. The Governor in Council may appoint for each military district one or more Directors of National Service (hereinafter called directors) who under the Director General shall be charged with the duties hereinafter mentioned.

3. The powers and duties of a director shall be as follows:—

(*a*) to make himself acquainted with the nature and importance of the various industries (agriculture, manufacturing, mining, lumbering, fishing, and others) which are being carried on in any locality within his district.

(*b*) For the purpose of obtaining necessary information respecting conditions of industry and of employment from time to time, the Directors of the Board, as the case may be, shall confer with and receive communications from persons engaged in the industries hereinbefore mentioned, and from any organization especially interested, such as Agricultural Societies, Labour Organizations, and Manufacturers' Associations.

(*c*) For the purpose of maintaining and carrying on all important industries, and of affording to the greatest possible number of men the opportunity of military service, to take such measures as may be expedient to have all available labour in the Dominion utilized to the greatest advantage, and with that view to make an estimate of such available labour.

(*d*) For the like purpose to arrange as far as possible for the employment of women in work within their capacity where additional labour is necessary.

(*e*) For the purpose of securing the largest available military forces in the present war to co-operate with and to afford all possible information to the military authorities engaged in recruiting within his district.

(*f*) To take into consideration the character and importance of the employment in which any person proposed to be recruited may be engaged; and to

notify the Commanding Officer of any unit which is being recruited in any such locality whether the services of such persons would be of more value to the State in the employment of which they are then engaged than if such persons were enlisted for active service in the military forces of Canada.

(*g*) In case the Director determines that the services of any person are of more value to the State in the employment of which he is then engaged, such person shall not be enlisted in the military forces of Canada without the written authority of the Director General.

(*h*) The Officer Commanding any unit which is being recruited in any such locality may appeal through the regular channel, from the decision of the Director to the Director General whose decision shall be final.

(*i*) The Governor in Council may at the instance of the Director General appoint a National Service Board or Boards in any Military District. Each Board shall be composed of three persons of whom the Director may be one; and the Director, if a member, shall be chairman, *ex officio*. The Order in Council appointing such Board may invest the Board with all or any of the powers and duties which otherwise would be invested in the Director or with any additional powers.

4. The salaries and allowances of the Director General and the Directors of National Service shall be such as the Governor in Council shall from time to time appoint.

5. Salaries and all other expenses incurred in carrying out the provisions of these regulations shall be paid out of the moneys available for the defence and security of Canada under the War Appropriation Act.

P.C. 2350.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 5th October, 1916.

The Committee of the Privy Council, on the recommendation of the Honourable R. Rogers, for the Prime Minister, advise that, under the provisions of the Regulations respecting National Service, established by Order in Council of the 5th day of October, 1916, the following gentlemen be appointed Directors of National Service for the districts hereinafter specified:—

District No.	Headquarters.	Director.	Residence.
6	Halifax	G. S. Campbell,	Halifax.
6	St. John	Capt. L. T. D. Tilley,	St. John.
5	Quebec	Lt. Col. C. A. Chauveau,	Quebec.
4	Montreal	J. H. Shearard,	Montreal.
3	Kingston	Lt. W. N. Bowen,	Lansdowne.
2	Toronto	Lt. Col. H. Brock,	Toronto.
1	London	K. W. McKay,	St. Thomas.
10	Winnipeg	E. R. Chapman,	Winnipeg.
12	Regina	A. L. Haining,	Saskatoon.
13	Calgary	R. B. Bennett, M.P.,	Calgary.
11	Victoria	R. F. Green, M.P.,	Victoria.

The Committee, on the same recommendation, further advise that the above-mentioned directors be paid a salary of $250 per month, with the exception of R. B. Bennett, Esq., M.P., and R. F. Green, Esq., M.P., and that all the said directors be paid their reasonable travelling and living expenses when engaged in connection with the work of the said National Service, the same to be paid from the War Appropriation.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2360.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 5th October, 1916.

The Committee of the Privy Council, on the recommendation of the Honourable R. Rogers, for the Prime Minister, advise that Sir Thomas Tait, of the city of Montreal, gentleman, be appointed Director General of National Service, under the regulations established by Order in Council of the 5th day of October, 1916.

The Minister observes that Sir Thomas Tait proposes to undertake and perform the duties of Director General of National Service without compensation for his services.

The Committee, on the same recommendation, further advise that the expenses of Sir Thomas Tait in the discharge of his duties as Director General of National Service be paid out of the moneys available for the defence and security of Canada under the War Appropriation Act.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2526.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Administrator on the 16th October, 1916.

The Committee of the Privy Council have had before them a report, dated 16th October, 1916, from the Right Honourable the Prime Minister, submitting that Sir Thomas Tait has resigned the appointment of Director General of National Service and recommending that the same be accepted.

The Prime Minister further recommends that Richard Bedford Bennett, Esq., K.C., LL.B., M.P., be appointed Director General of National Service, under the regulations established by Order in Council of the 5th October, 1916, and without compensation for his services.

The Prime Minister also recommends that the expenses of Mr. R. B. Bennett in the discharge of his duties as Director General of National Service be paid out of the moneys available for the defence and security of Canada under the War Appropriation Act.

The Committee concur in the foregoing recommendations and submit the same for approval.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2743.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Administrator on the 4th November, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable the Prime Minister, advise that under the provisions of the regulations respecting National Service, established by Order in Council of 5th October, 1916, Honourable Alexander Cameron Rutherford, of Edmonton, be appointed additional Director of National Service for Alberta, within Military District No. 13, with headquarters at Edmonton.

The Committee, on the same recommendation, further advise that Mr. Rutherford be paid a salary of $250 per month and that he be paid his reasonable travelling and living expenses when engaged in connection with the work of the said National Service, the same to be charged to the War Appropriation.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P. C. 2835.

AT THE GOVERNMENT HOUSE AT OTTAWA.

TUESDAY, the 14th day of November, 1916.

PRESENT:

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

His Excellency the Governor General in Council under the provisions of the War Measures Act, 1914, is pleased to make the following regulation additional to those enacted by the Order in Council of the 5th October, 1916 (P.C. 2351), respecting National Service, and the same is hereby made and enacted accordingly:—

"There shall be added to the National Service Board of Canada a Director of Munitions Labour who shall be appointed by the Governor in Council on the recommendation of the Imperial Munitions Board and who, under the Director General of National Service, shall be charged with such duties and powers as the Director General of National Service and the Imperial Munitions Board shall from time to time determine."

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P. C. 2852.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 15th November, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable the Prime Minister, advise—in pursuance of the provisions of the Order in Council of the 14th November, 1916 (P.C. 2835)—that Mark Howard Irish, of Toronto, Esquire, be appointed a member of the National Service Board of Canada and be Director of Munitions Labour.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2857.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 16th November, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable Sir Robert Laird Borden, the Prime Minister, advise that, under the provisions of the regulations respecting National Service, established by Order in Council of

the 5th day of October, 1916, Lieut.-Colonel Arthur Mignault of the Canadian Army Medical Corps, be appointed additional Director of National Service for Montreal, within Military District No. 4, with headquarters at Montreal.

The Committee, on the same recommendation, further advise that the said Lieut.-Colonel Arthur Mignault be paid a salary of $250 a month and that he be paid his reasonable travelling and living expenses when engaged in connection with the work of National Service, the same to be charged to the War Appropriation.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P. C. 2963.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 29th November, 1916.

The Committee of the Privy Council have had before them a report, dated 24th November, 1916, from the Right Honourable the Prime Minister, representing that after consultation with the Director General of National Service it is considered necessary that some organization should be created to assist in the exercise of the functions of the National Service Board of Canada in so far as the Public Service of Canada and its utilization to the greatest advantage are concerned.

The Prime Minister, accordingly, recommends that a Committee to be known as the Public Service Committee of the National Service Board of Canada be established subject to the following regulations:—

1. The committee shall be constituted of three members of the Public Service.

2. The committee shall establish a register of the officers and employees of the Government of Canada and shall meet to consider and recommend such effective measures as will insure the carrying on of the public service in Canada and at the same time will give to the greatest number of public servants an opportunity for enlistment for military service.

3. All recommendations of the committee shall be subject to the approval of the Governor in Council.

4. The committee, subject to the direction of the Director General of National Service, shall be charged with the execution of such measures so approved and of such other duties as may hereafter be assigned to it.

5. The committee in executing such measures shall receive the assistance and co-operation of the Deputy Heads of the various Departments of the Government.

The Committee shall be composed of the following:—

Lt.-Colonel William P. Anderson, C.M.G., C.E., Chief Engineer, Department of Marine and Fisheries; Major Graham A. Bell, Financial Comptroller, Department of Railways and Canals; Archelas Boldue, Esq., Superintendent Rural Mail Delivery Branch, Post Office Department.

The Committee of the Privy Council concur in the foregoing recommendation and submit the same for approval.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 3049.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 8th December, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable the Prime Minister, advise that, under the provisions of the Regulations respecting National Service, established by Order in Council of the 5th day of October, 1916, —John A. Macdonald, Esquire, of Cardigan, Prince Edward Island, be appointed an additional Director of National Service within Military District No. 6, for the province of Prince Edward Island, with headquarters at Charlottetown.

The Committee on the same recommendation, further advise that John A. Macdonald, Esquire, be paid a salary of $250 a month and that he be paid his reasonable travelling and living expenses when engaged in connection with the work of the said National Service, the same to be charged to the War Appropriation.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

Withdrawal of R.N.W.M.P. from Alberta, Saskatchewan, and Manitoba.

[70]

Commissioner Perry's report, referred to in the Orders in Council, is secret. It refers to the alien enemy situation in the west.

The Orders in Council of November 29, 1916, providing for the suspension during the period of the war of the agreements with the provinces of Alberta, Saskatchewan, and Manitoba relating to the Royal Northwest Mounted Police are attached hereto.

Under the Orders in Council the suspension was to take effect on January 1, 1917, but in consequence of representations received from the Government of the province of Alberta, it has been arranged that the date in the case of that province should be extended to the 1st March, 1917.

P.C. 2959.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 29th November, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable the Prime Minister, advise that authority be given for the cancellation on and from the 1st day of January, 1917, of the agreement between the Government of Canada and the Government of Manitoba, respecting the services of the Royal Northwest Mounted Police in that province.

The Prime Minister observes that on the 11th day of October, 1916, he received from the Commissioner of the Royal Northwest Mounted Police a confidential report, copy of which is hereto appended.

The Prime Minister calls attention to the considerations which, in the opinion of the commissioner, make it desirable that during the period of the war the Royal Northwest Mounted Police except in the Northwest Territories and the Yukon Territory should be relieved of all police duties so that its services may be utilized for federal purposes only.

The Prime Minister in expressing his concurrence in the view entertained by the commissioner, recommends that authority be given for all steps necessary to accomplish the cancellation of the existing agreement.

The Prime Minister further observes that the above-mentioned report of Commissioner Perry has been submitted to the Governments of the provinces of Manitoba, Saskatchewan, and Alberta, respectively, and that the consent of the said respective Governments has been obtained to the cancellation of the existing agreement during the period of the war.

All of which is respectfully submitted for approval.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2960.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 29th November, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable the Prime Minister, advise that authority be given for the cancellation on and from the 1st day of January, 1917, of the agreement between the Government of Canada and the Government of Saskatchewan, respecting the services of the Royal Northwest Mounted Police in that province.

The Prime Minister observes that the conditions and stipulations of the existing agreement are set forth in an Order in Council approved on the 21st day of May, 1915 (P.C. 1168), copy of which is appended hereto.

The Prime Minister further observes that on the 11th day of October, 1916, he received from the Commissioner of the Royal Northwest Mounted Police a confidential report, copy of which is hereto appended.

The Prime Minister calls attention to the considerations which, in the opinion of the commissioner, make it desirable that during the period of the war the Royal Northwest Mounted Police except in the Northwest Territories and the Yukon Territory should be relieved of all police duties so that its services may be utilized for federal purposes only.

The Prime Minister, in expressing his concurrence in the view entertained by the commissioner, recommends that authority be given for all steps necessary to accomplish the cancellation of the existing agreement.

The Prime Minister further observes that the above-mentioned report of Commissioner Perry has been submitted to the Governments of the provinces of Manitoba, Saskatchewan, and Alberta, respectively, and that the consent of the said respective Governments has been obtained to the cancellation of the existing agreement during the period of the war.

All of which is respectfully submitted for approval.

RODOLPHE BOUDREAU.
Clerk of the Privy Council.

P.C. 2961.

Certified Copy of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 29th November, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable the Prime Minister, advise that authority be given for the cancellation on and from the 1st day of January, 1917, of the agreement between the Government of Canada and the Government of Alberta, respecting the services of the Royal Northwest Mounted Police in that province.

The Prime Minister observes that the conditions and stipulations of the existing agreement are set forth in an Order in Council approved on the 19th day of April, 1915 (P.C. 731), copy of which is appended hereto.

The Prime Minister further observes that on the 11th day of October, 1916, he received from the Commissioner of the Royal Northwest Mounted Police a confidential report, copy of which is hereto appended.

The Prime Minister calls attention to the considerations which, in the opinion of the commissioner, make it desirable that during the period of the war the Royal Northwest Mounted Police, except in the Northwest Territories and the Yukon Territory, should be relieved of all police duties so that its services may be utilized for federal purposes only.

The Prime Minister, in expressing his concurrence in the view entertained by the commissioner, recommends that authority be given for all steps necessary to accomplish the cancellation of the existing agreement.

The Prime Minister further observes that the above-mentioned report of Commissioner Perry has been submitted to the Governments of the provinces of Manitoba, Saskatchewan, and Alberta, respectively, and that the consent of the said respective Governments has been obtained to the cancellation of the existing agreement during the period of the war.

All of which is respectfully submitted for approval.

RODOLPHE BOUDREAU.
Clerk of the Privy Council.

CORRESPONDENCE

Between Sir Robert Borden and Sir Wilfrid Laurier respecting proposals for the extension of the term of Parliament.

[74]

NOVEMBER 3, 1915, to JANUARY 3, 1917

OTTAWA, ONT., November 3, 1915.

DEAR SIR WILFRED LAURIER,—I beg to put in writing as requested by you at our interview on the 2nd inst., the proposals which I made at our interview on the 14th October last. They are as follows:—

1. That the term of the present Parliament of Canada, which expires on the 7th of October, 1916, shall be extended until one year after the conclusion of peace.

2. That there shall be no general election during the war; and that after the conclusion of peace a reasonable period shall be allowed in order that the Canadian forces now serving overseas may have the opportunity of first returning to their homes.

3. That during the interval, by-elections shall not be contested and that each party shall retain the seats which it now holds.

4. That in Parliament, and as far as possible in the public press, party warfare shall be suspended and the united efforts of both parties directed toward the best means of assisting to bring the war to a successful conclusion.

At our interview on the 14th October you appeared to have some hesitation about extending the life of Parliament until after the conclusion of the war, as the period thus fixed would be indefinite. If you regard that consideration as a serious one I am prepared, in lieu of proposal number one, to agree that the life of the present Parliament shall be extended for the period of one year, leaving for future consideration and discussion the necessity, if any, of further extension in order to avoid an election during the war.

Yours faithfully,

R. L. BORDEN.

The Right Honourable,
Sir WILFRID LAURIER, P.C., G.C.M.G., etc.,
House of Commons, Ottawa, Ont.

Confidential.

OTTAWA, November 8, 1915.

MY DEAR BORDEN,—In answer to yours of the 3rd I beg to observe:—

I persist in the opinion verbally expressed to you that the proposal to extend the term of the present Parliament until one year after the conclusion of peace would be absolutely objectionable for want of definiteness. I add that your subsidiary proposal that the life of the existing Parliament be extended for the period of one year, as set forth in the last paragraph of your letter, is a fair basis for consideration and acceptance.

I must, however, further observe that before any undertaking can be reached I should be informed of the extent and nature of your legislative programme; I would expect to know if you intended to confine such programme exclusively to war measures, or if you propose to introduce measures of general policy. In particular, I would like to be exactly informed as to your railway policy.

In our recent conversations, I understood that owing to the present financial situation, the Grand Trunk Pacific and the Canadian Northern might require some legislation. Full information, both as to the character of the legislation required and as to the proposed action of the Government is rendered necessary by the very importance of the matter involved.

I also call your attention to the fact that according to persistent press reports the Minister of Railways lately visited and inspected a line of railway on the Lower St. Lawrence with the view of either purchasing or assisting it. It would be equally imperative to be informed of the exact policy of the Government as to this concern.

With regard to the other matters mentioned in your letter, they can be reserved for adjustment when those above set forth have been disposed of.

I can, however, at once declare in respect of the by-election, that for such vacancies as were caused by death your suggestion is entirely acceptable, but as to those which were caused by resignations, I could not now make any agreement.

I desire to add that whilst it is quite proper that the correspondence which is now going on between us should be confidential, yet when completed it may at the proper time be made public.

Yours very sincerely,

WILFRID LAURIER.

The Right Honourable Sir ROBERT BORDEN, P.C., G.C.M.G.,
Prime Minister's Office,
Ottawa.

OTTAWA, ONT., November 9, 1915.

MY DEAR SIR WILFRID LAURIER,—Your letter of the 8th instant reached me last evening, and I hasten to reply.

During the continuance of the war we intend to confine our programme to measures relating to or arising out of the war, following in that regard the course which we pursued in the special session of 1914 and in the session of 1915. We have not in contemplation or under consideration at present any measure of general policy.

Neither of the railway companies to which you allude has made any application to the Government for assistance. In case any such application should be made, it must of course receive consideration; but I should be glad to discuss it with you before coming to any conclusion.

With respect to the railway on the Lower St. Lawrence, upon which a large amount of money has been expended and which is almost completed, it appears to me that the application for aid has considerable merit, having regard to the interests of the population concerned. However, I would not allow it, if opposed, to stand in the way of an agreement upon the momentous question which we have now to decide.

Having regard, therefore, to the above facts, that we propose no general programme outside of war measures, and that I shall be willing to consult with you regarding policy to be followed with respect to the several railway matters referred to, I again repeat my proposition:—

> That the term of the present Parliament be extended for one year from its legal expiration.
>
> That the holding of a general election shall be deferred until a reasonable period, say six months, after conclusion of peace.

If peace be not declared when the said term expires, the subject of holding an election or further extending the life of Parliament to be considered *de novo*.

By-elections not to be contested. Each side to hold the seats it now holds or held before the vacancy occurred. As the arrangement is being made to further a political truce I see no difference between cases of vacancy by death or resignation.

That in the meantime in Parliament and in the press, so far as the leaders on both sides can effect it, party warfare shall be suspended.

In view of the extreme gravity of the war situation and the fact that His Majesty the King has appealed to the nation for the largest possible number of troops, which appeal we are endeavouring now to answer by enlisting and equipping 100,000 additional men, to be probably followed by further enlistments, I strongly urge upon you the desirability of acceding to my proposition in order that we may all have our hands free to promote what for the present must be regarded as the supreme object.

Yours faithfully,

R. L. BORDEN.

The Right Honourable Sir Wilfrid Laurier, G.C.M.G.,
Ottawa, Ont.

Ottawa, November 13, 1915.

My Dear Borden,—While I have been unable to concur in your proposal of an extension of the Canadian parliamentary term until a year after the conclusion of peace, I have intimated and I repeat that your later suggestion to extend the life of the present Parliament for one year offers a basis for consideration and acceptance.

I am obliged, however, to attach more importance than you seem to do, to the question of the measures to be considered by Parliament at its next session. With reference to the railways mentioned by me, I understand you to say that no application for assistance has yet been made by any of them. That I need hardly point out to you, is no indication that there will be no such application. In affairs of this kind projects may be in the air and widely discussed before formal applications are filed; the railway situation may be such as to require legislation, even if no assistance out of the Treasury were involved. Any such legislation would be of importance, and in the absence of knowledge of what may come, all members will naturally desire to maintain freedom of action.

The very fact that whilst some measures relating to these railways are widely foreshadowed in the press, you are not in a position to make any statement concerning them, serves to confirm me in the opinion that, although at a later stage arrangements for some extension of the parliamentary term may become expedient, the time has not arrived, when any of us should be asked to come to a settled agreement on the subject. Our Parliament has yet nearly a full year to run. Why should we, at a time when great events are happening, which may change the situation, come to a conclusion to-day as to what may be done some months hence?

I may here observe that the term of the British Parliament is to expire only a few weeks hence, and no steps have yet been taken towards its prolongation.

I certainly agree with you that the war situation is of extreme gravity, and I will in the future as from the first, to the fullest extent of my ability, facilitate all necessary war measures.

In my judgment the business of Parliament should proceed as usual. It is possible that events may so shape themselves as to give us new light as to what would be the best course to take. But if when the session is approaching its end, the war is still

on, we may then consider the advisability of extending the life of Parliament on the lines above set down.

With reference to the by-elections, it seems to me that there is a material difference between the vacancies caused by death and those that have been caused by resignation. In the case of vacancies caused by death, I would count on my friends consenting that contests be avoided by allowing each party to hold that which it has had. The other seats are in a notably different position, because the vacancies have arisen under circumstances which have naturally aroused much strong feeling. In some of the electoral districts, it may not be easy to avoid contests. At all events I do not feel as free to make an agreement in these cases as I do in the case of vacancies caused by death.

As to what should be the attitude of members of Parliament and the press on party matters, my desire all along has been that the field of party controversy be narrowed and the field of common action broadened. It would have been most agreeable to me if an understanding could have been reached some months ago that there would be no elections this year. I will be prepared, as far as my influence goes, to advise that party conflict be minimized, and that the most cordial support be given to the Government in the prosecution of Canada's part in the war.

Neither in Parliament nor in the press can we expect nor should we desire the suppression of all discussion. Even in the Mother Country, where there is a degree of unity between party leaders, that is most gratifying, there is still much freedom of discussion. The Canadian Parliament cannot be expected to abdicate its functions.

There will naturally be inquiry into matters of public interest, that being one of the chief purposes for which Parliament exists. But I feel assured that it will be quite possible for Parliament to exercise its proper functions in this respect, without in any way restricting the Government's freedom of action, in that which we must all agree is to-day our paramount duty, viz., to see that Canada puts forth every possible effort for the prosecution of the war to a triumphant conclusion.

Yours very sincerely,

WILFRID LAURIER.

The Right Honourable Sir Robert Laird Borden, P.C., G.C.M.G.,
Prime Minister's Office,
Ottawa.

Ottawa, Ont., November 13, 1915.

Dear Sir Wilfrid Laurier,—Your letter of the 13th instant reaches me on the eve of my departure for Halifax to attend the funeral of Sir Charles Tupper.

I observe with regret your conclusion that the time has not arrived when a settled agreement should be reached on the subject discussed at our interviews and in our correspondence. The acceptance of my proposals involves, as I have said:—

1. The extension of the term of the present Parliament for one year.
2. The avoidance of a general election during the war.
3. An arrangement that by-elections shall not be contested—each party holding the seats which it previously held.
4. The suspension of party warfare while the Empire is engaged in a struggle which threatens its existence.

I desire to repeat and emphasize the considerations which were expressed in my letter of the 9th instant.

Respecting your reference to the British Parliament, I would observe that the Parliament of Canada has not the power to prolong its term. That purpose can only be carried into effect by legislation of the British Parliament, based upon resolutions passed by the Canadian Senate and House of Commons. This would involve considerable delay, and for this reason a decision must be reached at a correspondingly earlier date. We have no assurance that the British Parliament may not prorogue before the conclusion of our next session.

With the possibility of an impending general election the approaching session of the present Parliament would inevitably develop warm party controversy. The responsibilities imposed upon the Government by this war are of an extremely arduous nature and demand the most earnest and unremitting attention from day to day. You cannot fail to realize that in the discharge of these responsibilities which must include every possible provision and safeguard for the gallant men who have gone and who are yet to go to the front, it would be both unfortunate and deplorable that the energies of any Government should be distracted by the possible imminence of a general election and all that it would involve.

The supreme purpose is the attainment of an honourable and lasting peace through the victory of the allied nations. What may afterwards happen in respect of the fortunes of any political party is in comparison of little moment.

For these reasons I must repeat my regret at the conclusion which you announce.

Yours faithfully,

R. L. BORDEN.

The Right Honourable Sir WILFRID LAURIER, P.C., G.C.M.G.,
Ottawa, Ont.

OTTAWA, Ont., December 30, 1916.

DEAR SIR WILFRID LAURIER,—The correspondence which took place between us last year respecting the extension of the parliamentary term was not made public at the time. This was due to your desire expressed in your first letter that its publication should be withheld, although you agreed that it must eventually be made public. I feel that the time for publication has now arrived, but before taking that course I think it proper to bring the subject to your attention in order that I may have the benefit of any observations which you may desire to make.

Believe me,

Yours faithfully,

R. L. BORDEN.

The Right Honourable Sir WILFRID LAURIER, P.C., G.C.M.G.,
Ottawa.

OTTAWA, January 3, 1917.

DEAR SIR ROBERT BORDEN,—In answer to yours of the 30th of December, I see no objection to the publication of the correspondence exchanged between us last year on the subject of the extension of Parliament.

Believe me ever,

Yours very sincerely,

WILFRID LAURIER.

Right Honourable Sir ROBERT L. BORDEN, P.C., G.C.M.G., M.P.,
Ottawa.

RETURN

[861]

To an Address to His Excellency the Governor General, of the 31st January, 1917, for a copy of all correspondence exchanged between the Dominion Government and the Provincial Governments inviting them to a conference on the subject of making provisions for returned soldiers, including a copy of the proceedings of the conference which took place on the 10th of January at Ottawa on the same subject.

Copy of the following sent to each of the Provincial Premiers:—

OTTAWA, Ont.,
January 13, 1917.

Dear Mr. ————

The conference which has been held during the past two days between representatives of the Federal Government and representatives of the several Provincial Governments has been both interesting and instructive. The subjects under consideration were important and all points of view were brought to bear on the discussion.

For your information I beg to enclose copy of the following documents:—

1. Copy of despatch from the Colonial Secretary to the Governor General dated 21st September, 1916.
2. Copy of my letter to you dated 23rd September, 1916.
3. Copy of telegram from Colonial Secretary to the Governor General dated 15th December.
4. Copy of telegram from the Governor General to the Colonial Secretary dated 30th December.
5. Copy of telegram from Colonial Secretary to the Governor General dated 10th January.
6. Copy of memorandum given to the press at the conclusion of the conference.

The conference was made acquainted with the proposals of the Federal Government for assistance to soldiers who may desire to settle upon lands which are at the disposal of that Government.

It is desired that each Provincial Government shall afford, with the least possible delay, to the Federal Government, all the information referred to in the despatch of 21st September last. With respect to this the following suggestions are made:—

1. The information should be sent in printed form.
2. Not less than twenty-five copies should be forwarded.
3. It should set forth the condition of settlement, the size of the holdings and the extent of provincial assistance, if any, available.
4. It should set forth the situation, character, and quality of the provincial lands available, the opportunities for production and for the marketing of

products, facilities for transportation, and all information of a like character which might influence the decision of an intending immigrant.

5. The opportunities for employment and any proposed measures or efforts of the Provincial Government in that regard should be stated.

6. The opportunities for vocational training or technical education within the province might be set forth with advantage.

7. Any other information which the Provincial Government might think useful for the purpose should also be included, especially any pamphlets which have been prepared for the purpose of making intending immigrants acquainted with the opportunities for settlement within the province.

May I venture to emphasize the necessity for prompt attention to the matter which was first placed before your Government in the month of September last.

Yours faithfully,

R. L. BORDEN.

Hon. Premier of ————————.

Copy.

ENCLOSURE No. 1.

From the Colonial Secretary to the Governor General.

LONDON, September 21, 1916.

September 21. While His Majesty's Government feel necessity of finding openings at home for the largest possible number of ex-service men, I feel sure that there will be some emigration, and in these circumstances I think that time has arrived for taking practical steps for dealing with emigration problems that will arise after the war. His Majesty's Government regard it as of the first importance to the Empire that ex-soldiers who desire to emigrate shall be retained within it and not be allowed to drift abroad from want of guidance and knowledge of the opportunities available to them in the Dominions. We think it will be necessary to set up some central body on which each Dominion shall be represented to formulate plans and co-ordinate efforts. If your Government concur it will be doubtless also agreed that nothing useful can be done unless such body is in a position to supply full and detailed statement which will give intending emigrants all particulars as regards amount and quality of land offered for settlement, size of holdings, extent of government assistance, etc., and also openings for employment, if any, offered by Government. I gather from ministerial statements to Haggard that there is general desire throughout Dominions to co-operate in this, but that in most cases no concrete proposals have been yet formulated by Ministers, and that in no cases have details such as mentioned above been fully settled. We earnestly trust that your Ministers may be willing to apply themselves to this question forthwith and let me know with the least possible delay what they and their legislators are prepared to do. It is obvious, first, that time will be required for local consideration; secondly, that on the nature of the replies will depend action to be taken by His Majesty's Government in the way of co-operation and assistance; thirdly, that much organization will be required if successful results are to be obtained. I am therefore warranted in pressing matter on Ministers as one of urgency. When they are in a position to return definite replies they will doubtless also say whom they nominate as their representative on the central body. Similar telegram addressed to other Dominions.

BONAR LAW.

ENCLOSURE No. 2.

Copy of the following sent to each Provincial Premier:—

OTTAWA, ONT., September 23, 1916.

The Federal Government has received a despatch from the Colonial Secretary which states that the Imperial Government regard it as of first importance to the Empire that ex-soldiers who desire to emigrate shall be retained within the Empire and not be allowed to drift abroad from want of guidance and knowledge of the opportunities available to them in the dominions. In connection with the possible establishment of a central body to formulate plans and co-ordinate efforts the Colonial Secretary represents that nothing useful can be done unless such a body is in a position to supply a full and detailed statement which will give intending emigrants all particulars as regards amount and quality of land offered for settlement, sizes of holdings, extent of government assistance, etc., and also opportunities for employment, if any, offered by the Government.

It is further represented in the despatch alluded to that the information above mentioned ought to be furnished at the earliest possible date, as there is urgency in the matter.

I should be glad to receive from your Government for transmission to the Colonial Secretary such information on the subjects mentioned as may be available.

Yours faithfully,

R. L. BORDEN.

ENCLOSURE No. 3.

Code.

From the Colonial Office to the Governor General.

LONDON, December 15, 1916.

Should be glad to receive an early reply to my telegram September 21 as to emigration problems after the war.

LONG.

ENCLOSURE No. 4.

OTTAWA, December 30, 1916.

Cable from His Excellency the Governor General to the Colonial Secretary.

Your cables twenty-first September, fifteenth December, respecting immigration problems. My advisers inform me that it has been difficult to collect necessary information and that conference of Provincial Governments is being called for tenth January. My advisers agree, generally speaking, in the views expressed in your cable twenty-first September.

DEVONSHIRE.

ENCLOSURE No. 5.

Code.

From Colonial Secretary to Governor General.

LONDON, January 10, 1917.

January 9. With reference to your telegram 30th December, emigration of ex-service men, I shall await fuller expression of views of your Ministers after conference referred to; meanwhile it is essential, in view of widespread interest in this question, that we should be in position to announce composition of central body without delay; you should therefore urge your Ministers to nominate their representatives as soon as possible.

LONG.

ENCLOSURE No. 6.

Statement of Proceedings of Conference given to the Press, January 11, 1917.

The conference just concluded between the Federal and the Provincial Governments arose out of a recent despatch from the British Government with respect to probable emigration to the Overseas Dominions of ex-soldiers from the United Kingdom. This despatch expressed the desire of the British Government to retain ex-soldiers within the United Kingdom as far as possible, but to co-operate with the Dominions in retaining them within the Empire in case they should desire to emigrate. Information was desired by the British Government which would afford to impending emigrants from the United Kingdom all particulars as regards amount and quality of land for settlement, size of holding, extent of government assistance, etc., and also openings for employment, if any, offered by the Governments of the Overseas Dominions. It was also proposed that a central body should be established in the United Kingdom to take such action as might be necessary there for this purpose, and the suggestion was made that each of the Overseas Dominions should be represented on that body. At the conference just concluded the discussion took a somewhat wide range, and the members of the conference found it both interesting and instructive. The outline of a proposal by the Federal Government for land settlement was submitted and discussed, and the proposals for the like purpose already enacted or under consideration by the various Provincial Governments also came up for consideration. It was arranged that full information should immediately be supplied to the Federal Government as to existing Provincial legislation, Orders in Council, etc., providing for land settlement or for employment to returned soldiers, together with full particulars as to amount, situation, and character of land available, conditions of homesteading, purchase, etc. The question of somewhat wider proposals in which the Federal Government should co-operate with the Provincial Governments for land settlement was also under discussion; and this discussion touched the question of settlement upon lands now in private ownership but not in use for productive purposes. The great necessity of increased production was universally realized, and there was a hearty spirit of co-operation by all the Governments for that most vital and important object.

Proposals with respect to increased facilities for loans to the rural population and as to the best method of co-operation between the Federal and the Provincial Governments for that purpose were also considered.

As to employment, it was ascertained that in the various provinces preference would be given in the Civil Service to ex-soldiers, and that this preference would doubtless be extended to public works. A warm desire on the part of all the Governments to assist generally in obtaining employment for returned soldiers, or for soldiers emigrating to Canada, was also manifest.

The question of technical education was also discussed, and suggestions as to possible co-operation by the Federal Government with the Provincial Governments in that regard were favourably considered.

Telegram.

NEW YORK, January 9, 1917.

Sir ROBERT L. BORDEN,
Ottawa, Ont.

Will leave for Ottawa to-night; pleased to be present at conference.

ARTHUR L. SIFTON.

Telegram.

REGINA, Sask., January 8, 1917.

Sir ROBERT BORDEN,
Ottawa.

Hon. J. A. Calder will represent Saskatchewan Government at conference; regret cannot personally attend.

W. M. MARTIN.

Telegram.

OTTAWA, Ont., January 9, 1917.

Hon. A. L. SIFTON,
The Biltmore,
New York, N.Y.

Invitation to attend meeting of Federal and Provincial Governments respecting settlement and employment of British soldiers emigrating to Canada after war has been arranged for to-morrow and Thursday. Telegraphic invitation was sent you at Edmonton on 30th December. Earnestly hope you can attend.

R. L. BORDEN.

Telegram.

HALIFAX, N.S., January 6.

Sir ROBERT BORDEN,
Ottawa.

Hon. R. M. Macgregor will represent Government of Nova Scotia at conference referred to in your telegram.

G. H. MURRAY.

REGINA, January 3, 1917.

MY DEAR SIR ROBERT,—Your telegram of 30th December with regard to the conference of Federal and Provincial Governments to be held on Wednesday, January 10, at Ottawa, reached me in due course. I regret exceedingly that it will be impossible f r any of the members of the Saskatchewan Government to be present. My regret is the greater when I consider the important subject which is to be discussed at that conference, and I am exceedingly sorry that I cannot attend the gathering personally.

Yours faithfully,

W. M. MARTIN.

Sir ROBERT L. BORDEN, G.C.M.G.,
Prime Minister,
Ottawa, Canada.

Telegram.

VICTORIA, B.C., January 5, 1917.

Sir ROBERT L. BORDEN,
Ottawa.

Replying your wire 30th, have arranged to be in Ottawa, 10th, and will represent province at conference personally.

H. C. BREWSTER.

TORONTO, January 2, 1917.

DEAR SIR ROBERT,—I have your message of the 30th ult., and note that a conference of the Federal and Provincial Governments will be held on Wednesday, January 10, at Ottawa, to consider the question of provision for ex-soldiers who may emigrate to Canada, and I will be glad to see that my Government is represented at that conference. I am afraid it may not be possible for me to attend personally, but if not I will arrange for one or more of my Ministers to attend.

Yours sincerely,

W. H. HEARST.

Right Honourable Sir ROBERT BORDEN,
Ottawa, Canada.

Telegram.

QUEBEC, Que., January 4, 1917.

Sir R. L. BORDEN,
Premier, Ottawa.

In reply to your telegram of 30th ult., am sending the Honourable J. L. Lecarie and the Honourable W. G. Mitchell, to represent my Government at the proposed conference between the Federal Government and the Governments of the different provinces to be held on the 10th instant.

LOMER GOUIN.

Telegram.

FREDERICTON, N.B., January 2, 1917.

Hon. Sir ROBERT L. BORDEN,
Ottawa.

Government of New Brunswick will be represented at conference of Federal and Provincial Governments called for Wednesday, January 10, at Ottawa.

GEO. J. CLARKE.

Telegram.

WINNIPEG, Man., January, 2, 1917.

Rt. Hon. Sir ROBERT L. BORDEN,
Prime Minister of Canada,
Ottawa, Ontario.

Message December 30 received; as our House opens on the 11th am afraid it will not be possible for me to attend; will, however, arrange for some representative of Government to be present at Conference.

T. C. NORRIS.

C. P. Telegraph.

OTTAWA, Ont., December 30, 1916.

Hon. Premier of ————————

With reference to my letter of September last, respecting despatch from the Colonial Secretary, as to provision for ex-soldiers who may emigrate to Canada, it is desired that a conference of the Federal and Provincial Governments shall be held on Wednesday, 10th January, at Ottawa, and you are respectfully requested to attend that conference, or to send a representative or representatives of your Government for that purpose. The Federal Government has reached a conclusion as to measures which it will propose to Parliament in that regard and also for making provision for returned Canadian soldiers in connection with land settlement and otherwise.

R. L. BORDEN.

Copy of foregoing sent to each Provincial Premier.

RETURN

[87]

To an order of the House, of the 31st January, 1917, for a copy of all correspondence between any Member of the Government and Sir Thomas Tait referring to his appointment to, and resignation from, the National Service Board.

OTTAWA, September 8th, 1916.

Sir THOMAS TAIT,
Montreal, Que.

Would like to see you in Ottawa respecting an important matter at your earliest convenience. Kindly advise when I may expect you.

R. L. BORDEN.

Telegram.

ALGONQUIN HOTEL, N.B., September 10, 1916.

Sir ROBERT BORDEN,
Ottawa, Ont.

Unfortunately owing annual meeting my coal company and other important business at Minto, cannot be Ottawa until Monday eighteenth. In meantime perhaps you can write me here.

THOS. TAIT.

OTTAWA, September 11, 1916.

Dear SIR THOMAS TAIT,—Thanks for your telegram. The subject which I desired to discuss with you relates to the appointment of a Director General of Recruiting, under the Order in Council recently passed, a copy of which is enclosed for your information.

It is probable that the title will be changed to Director General of National Service.

The objects of the Order in Council, briefly summarized, are as follows:—

(1) To obtain the largest number of recruits available in this country, having regard at the same time to the necessity of maintaining the agricultural, industrial and commercial stability of the Dominion.

(2) For that purpose to systematize and co-ordinate all existing recruiting agencies, whether official or unofficial.

(3) To establish an authority which shall have the power and the duty of determining whether the services of any man of military age are more valuable to the State in his present occupation than in military duties under present conditions; and either to permit or forbid his enlistment according to the determination so reached.

(4) To establish an authority for the issuing of badges to the following class of persons:—

(*a*) Men honourably discharged from the Expeditionary Force.

(*b*) Men who have sought to enlist and have been pronounced medically unfit for military service.

(*c*) Men whose services to the state in their present occupation are more valuable than in military service, when that determination has been made by the proper authority.

My colleagues and I are of opinion that you would fulfil and discharge worthily and adequately the duties of Director General, and it was for the purpose of asking you to undertake those duties that I desired a conference. We would be grateful if you would take the subject into your immediate consideration and inform me by telegram of your decision as soon as convenient.

With best wishes, believe me, dear Sir Thomas Tait.

Yours faithfully,

R. L. BORDEN.

Sir Thomas Tait,
Algonquin Hotel,
St. Andrews, N.B.

Telegram.

Ottawa, September 11, 1916.

Sir Thomas Tait,
St. Andrews, N.B.

Thanks for telegram. I have sent full particulars by letter, which should reach you to-morrow.

R. L. BORDEN.

Telegram.

Ottawa, September 14, 1916.

Sir Thomas Tait,
St. Andrews, N.B.

Private. I would be grateful for reply as soon as convenient as the matter is somewhat urgent.

R. L. BORDEN.

Telegram.

Algonquin Hotel, N.B., September 14, 1916.

Sir Robert Borden,
Ottawa, Ont.

Just returned from Minto. Would like discuss matters with you before deciding. If I see you Ottawa, Monday, will that be soon enough?

THOS. TAIT.

OFFICE OF THE DIRECTOR GENERAL OF NATIONAL SERVICE,
OTTAWA, October 12, 1916.

DEAR SIR ROBERT BORDEN,—In view of what has occurred in the case of Mr. G. M. Murray, who had been offered by me and who had accepted the position of secretary of "National Service," and of that incident as indicative of what may be anticipated in connection with the future organization and work of "National Service," I feel compelled, after serious consideration, to relinquish the position of Director General of National Service, and I therefore do now resign from that position.

I am leaving Ottawa to-morrow, but I shall be glad to return as soon as my successor is appointed to transfer the business to him and to afford him any information within my knowledge.

I thank you for the honour done me and the confidence shown in me by you in appointing me to such a high and responsible position as that of Director General of National Service and, with the highest personal regard for yourself, I remain,

Yours sincerely,

THOS. TAIT.

The Hon. Sir ROBERT BORDEN, G.C.M.G.,
Prime Minister of Canada,
Ottawa.

OTTAWA, Ont., October 13, 1916.

DEAR SIR THOMAS TAIT,—I beg to acknowledge your letter of the 12th instant. It came somewhat as a surprise, as you had not given me in our interview of last evening an intimation of any such intention.

Under the circumstances I have no alternative but to accept your resignation, and in doing so permit me to convey my thanks for your acceptance of the position in the first instance at my request.

While I do not venture to question a decision which must rest upon your own judgment, you will permit me to say that in my opinion there was nothing in the incident which has occurred that should have impelled you to take so serious and precipitate a decision.

With best wishes, believe me,

Yours faithfully,

R. L. BORDEN.

Sir THOMAS TAIT,
Ottawa.

Correspondence between the Prime Minister and the Leader of the Opposition concerning the formation of a Parliamentary National Service Commission.

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OTTAWA, Ont., October 14, 1916.

MY DEAR SIR WILFRED LAURIER,—I beg to enclose herewith copy of a letter which I have received from Sir Thomas Tait as Director General of National Service. With the letter he transmits a recommendation unanimously made by the Directors of National Service in conference at Ottawa as to the formation of a Parliamentary National Service Commission and the issue of calls to the manhood of Canada as set forth in his letter and in the resolution.

You may remember that during the last session of Parliament I suggested to you the formation of a parliamentary committee along somewhat similar lines.

I am quite prepared to accept the proposal of the conference and to undertake the formation of such a committee; and I trust that you will be good enough to co-operate. Of course, Parliament itself is the final authority for the appointment of a parliamentary committee in the ordinary sense; but it seems to me that a committee composed of members of Parliament for the purpose set forth in the resolution might be formed in the meantime. I would suggest a committee of twelve, and I would ask you to name five members of whom I hope you will be one. If you should think a larger number desirable I shall willingly acquiesce.

Believe me,

Yours faithfully,

R. L. BORDEN.

The Right Honourable Sir WILFRID LAURIER, P.C., etc.,
Ottawa.

OFFICE OF
THE DIRECTOR GENERAL OF NATIONAL SERVICE

OTTAWA, October 12, 1916.

SIR,—I have the honour to transmit herewith a recommendation unanimously made by the Directors of National Service in conference at Ottawa, as to the formation of a Parliamentary National Service Committee and the issue by proclamation and otherwise, of strong and explicit calls to the manhood of Canada, of military age and fitness, to enlist for overseas service, to the men and women of Canada to serve the nation in such capacities as their services may be of most value, and to all employers to effect such industrial organization as is necessary to meet emergencies arising out of the war.

I have the honour to be, sir,

Your obedient servant,

THOS. TAIT,
Director General.

Sir ROBERT BORDEN, G.C.M.G.,
Prime Minister of Canada,
Ottawa.

The Directors of National Service in conference at Ottawa, having regard to the duties imposed on them and to the work which lies before them, are strongly of the opinion that the following recommendations, if given effect to by the Government, would materially assist in that work:—

That a Parliamentary National Service Committee to be composed of representatives of all the political parties in Parliament be formed at the earliest possible date.

That such committee as soon as possible after its formation issue, by proclamation and through the public press and in any other expedient way,

(*a*) A strong and explicit call to the manhood of Canada of military age and fitness to enlist for Overseas Military and Naval Service;

(*b*) A similar call to the men and women of Canada individually and through their various organizations to serve the nation in such capacities as their services may be of most value;

(*c*) A similar call to all employers to effect such industrial reorganization as is necessary to meet emergencies arising out of the war.

HOUSE OF COMMONS,
OTTAWA, October 17, 1916.

MY DEAR BORDEN,—On receipt yesterday of your favour of the 14th instant, I caused a search to be made in the official *Gazette* for the Order in Council organizing the National Service Commission as, naturally, I would want to know exactly the service entrusted to the commission, before answering the suggestion contained in your letter.

I cannot find that the Order in Council was published in *The Gazette*, and if published in the daily press I have missed it.

May I, therefore, ask you for a copy of the Order in Council, and upon receipt of it I will hasten to answer your communication.

Believe me ever,

Yours very sincerely,

WILFRID LAURIER.

Right Honourable Sir ROBERT L. BORDEN, G.C.M.G.,
Ottawa.

OTTAWA, October 17, 1916.

MY DEAR SIR WILFRID LAURIER,—The Order in Council as amended upon the suggestion of Sir Thomas Tait was approved on the 5th inst., and in reply to your letter of to-day I have much pleasure in sending you a copy.

Yours faithfully,

R. L. BORDEN.

Rt. Hon. Sir WILFRID LAURIER, M.P.,
Ottawa.

SESSIONAL PAPER No. 88

NATIONAL SERVICE REGULATIONS AS ESTABLISHED BY ORDER IN COUNCIL OF OCTOBER 5, 1916.

P.C. 2351.

AT THE GOVERNMENT HOUSE AT OTTAWA,

THURSDAY, the 5th day of October, 1916.

PRESENT:

HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

His Royal Highness the Governor General in Council, under the provisions of the War Measures Act, 1914, is pleased to make the following regulations respecting National Service, and the same are hereby made and enacted accordingly.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

REGULATIONS RESPECTING NATIONAL SERVICE.

1. The Governor in Council may appoint a Director General of National Service (hereinafter called the Director General) who, under the Prime Minister, shall be charged with the duty of directing, supervising and co-ordinating the work of the Directors of National Service.

2. The Governor in Council may appoint for each military district one or more Directors of National Service (hereinafter called directors) who under the Director General shall be charged with the duties herinafter mentioned.

3. The powers and duties of a director shall be as follows:—

(*a*) To make himself acquainted with the nature and importance of the various industries (agriculture, manufacturing, mining, lumbering, fishing, and others) which are being carried on in any locality within his district.

(*b*) For the purpose of obtaining necessary information respecting conditions of industry and of employment from time to time, the Directors or the Board, as the case may be, shall confer with and receive communications from persons engaged in the industries hereinbefore mentioned and from any organizations especially interested, such as agricultural societies, labour organizations, and manufacturers' associations.

(*c*) For the purpose of maintaining and carrying on all important industries and of affording to the greatest possible number of men the opportunity of military service, to take such measures as may be expedient to have all available labour in the Dominion utilized to the greatest advantage, and with that view to make an estimate of such available labour.

(*d*) For the like purpose to arrange as far as possible for the employment of women in work within their capacity where additional labour is necessary.

(*e*) For the purpose of securing the largest available military forces in the present war, to co-operate with and to afford all possible information to the military authorities engaged in recruiting within his district.

(*f*) To take into consideration the character and importance of the employment in which any persons proposed to be recruited may be engaged; and to notify the Commanding Officer of any unit which is being recruited in any such locality whether the services of such persons would be of more value to the State in the employment in which they are then engaged than if such persons were enlisted for active service in the military forces of Canada.

(*g*) In case the Director determines that the services of any person are of more value to the State in the employment in which he is then engaged, such person shall not be enlisted in the military forces of Canada without the written authority of the Director General.

(*h*) The Officer Commanding any unit which is being recruited in any such locality may appeal, through the regular channel from the decision of the Director to the Director General, whose decision shall be final.

(*i*) The Governor in Council may at the instance of the Director General appoint a National Service Board or Boards in any Military District. Each Board shall be composed of three persons of whom the Director may be one; and the Director, if a member, shall be chairman *ex officio*. The Order in Council appointing such Board may invest the Board with all or any of the powers and duties which otherwise would be vested in the Director or with any additional powers.

4. The salaries and allowances of the Director General and the Directors of National Service shall be such as the Governor in Council shall from time to time appoint.

5. Salaries and all other expenses incurred in carrying out the provisions of these regulations shall be paid out of the moneys available for the defence and security of Canada under the War Appropriation Acts.

HOUSE OF COMMONS,
OTTAWA, October 19, 1917.

DEAR SIR ROBERT BORDEN,—On receiving Monday last, the 16th inst., your letter of the previous Saturday transmitting to me the resolution of the Directors of National Service for the formation of a Parliamentary National Service Committee to assist in the work entrusted to them, you ask me to co-operate with you in the formation of such a committee, and you add that during last session you made me a suggestion on similar lines.

As to the latter observation, I must say at once that your suggestion must have been a very casual one, in the course of conversation on other matters for I have no recollection whatever of it.

As to your present proposal, it seemed to me indispensable that I should acquaint myself of the exact powers and duties assigned to the Directors of National Service, as defined in the Order in Council creating the Service, and I at once caused a search to be made for it in the file of *The Canada Gazette*. The search satisfied me that it had not been published, and on Tuesday I asked you for a copy, which I received the same day, and I think I ought to reproduce it here in its entirety:—

> 1. The Governor in Council may appoint a Director General of National Service (hereinafter called the Director General) who, under the Prime Minister shall be charged with the duty of directing, supervising and co-ordinating the work of the Directors of National Service hereinafter mentioned.
>
> 2. The Governor in Council may appoint for each military district one or more Directors of National Service (hereinafter called Directors) who, under the Director General shall be charged with the duties hereinafter mentioned.
>
> 3. The powers and duties of a director shall be as follows:—
>
> (*a*) To make himself acquainted with the nature and importance of the various industries (agriculture, manufacturing, mining, lumbering, fishing, and others) which are being carried on in any locality within his district.
>
> (*b*) For the purpose of obtaining necessary information respecting conditions of industry and of employment from time to time, the Directors or the Board as the case may be, shall confer with and receive communications from

persons engaged in the industries hereinbefore mentioned and from any organization especially interested, such as agricultural societies, labour organizations, and manufacturers' associations.

(*c*) For the purpose of maintaining and carrying on all important industries and of affording to the greatest possible number of men the opportunity of military service, to take such measures as may be expedient to have all available labour in the Dominion utilized to the greatest advantage and with that view to make an estimate of such available labour.

(*d*) For the like purpose to arrange as far as possible for the employment of women in work within their capacity where additional labour is necessary.

(*e*) For the purpose of securing the largest available military forces in the present war, to co-operate with and to afford all possible information to the military authorities engaged in recruiting within his district.

(*f*) To take into consideration the character and importance of the employment in which any persons proposed to be recruited may be engaged; and to notify the Commanding Officer of any unit which is being recruited in any such locality whether the services of such persons would be of more value to the State in the employment in which they are then engaged than if such persons were enlisted for active service in the military forces of Canada.

(*g*) In case the Director determines that the services of any person are of more value to the State in the employment in which he is then engaged, such person shall not be enlisted in the military forces of Canada without the written authority of the Director General.

(*h*) The Officer Commanding any unit which is being recruited in any such locality may appeal through the regular channel, from the decision of the Director to the Director General whose decision shall be final.

(*i*) The Governor in Council may at the instance of the Director General appoint a National Service Board or Boards in any military district. Each Board shall be composed of three persons of whom the Director may be one; and the Director, if a member, shall be chairman, *ex officio*. The Order in Council appointing such Board may invest the Board with all or any of the powers and duties which otherwise would be vested in the Director or with any additional powers.

4. The salaries and allowances of the Director General and the Directors of National Service shall be such as the Governor in Council shall from time to time appoint.

5. Salaries and all other expenses incurred in carrying out the provisions of these regulations shall be paid out of the moneys available for the defence and security of Canada under the War Appropriation Acts.

It is obvious that under the above instructions the duty of the Directors of National Service is to find out the number of men who can be removed from "the various industries (agriculture, manufacturing, mining, lumbering, fishing, and others) which are carried out in any locality within each district," and to provide that no person be allowed to enlist "whose services would be of more value to the State in the employment in which he is now engaged."

In that view it seemed to me that the first thing to be done would have been at once to enter into communication with employers of labour, agricultural and industrial, in every locality, as the persons best qualified to supply the desired information, and I would have deemed it my duty to communicate at once with Sir Thomas Tait and discuss with him this aspect of the subject, in connection with the resolution of the Directors of National Service for a Parliamentary Committee.

Unfortunately, Sir Thomas Tait has resigned from the position of Director General of National Service, and his resignation, and especially the reasons for his resignation, put a new complexion upon your proposal.

Sir Thomas Tait resigned not only on account of "what occurred in the case of Mr. G. M. Murray, who had been offered the position of Secretary of National Service," but chiefly, as I understand it, on account of that "incident as indicative of what may be anticipated in connection with the future organization and work of National Service."

I feel that under the circumstances, in acceding to your suggestion, my assistance to the cause, which I have endeavoured to serve from the first day of the war, would not be untrammelled, and consequently as effective as if I continue to serve it according to my own ways as heretofore.

Believe me,

Yours very sincerely,

WILFRID LAURIER.

Right Honourable
Sir Robert L. Borden, P.C., G.C.M.G.,
Ottawa.

Ottawa, Ont., October 20, 1916.

Dear Sir Wilfrid Laurier,—I beg to acknowledge your letter of yesterday, which has just reached me; and I observe that you decline to co-operate with me in the formation of a committee of members of Parliament for the purpose set forth in the resolution of the Directors of National Service, which is as follows:—

> "That a Parliamentary National Service Committee to be composed of representatives of all the political parties in Parliament be formed at the earliest possible date.
>
> "That such committee as soon as possible after its formation issue, by proclamation and through the public press and in any other expedient way,
>
> "(*a*) A strong and explicit call to the manhood of Canada of military age and fitness to enlist for Overseas Military and Naval Service.
>
> "(*b*) A similar call to the men and women of Canada individually and through their various organizations to serve the nation in such capacities as their services may be of most value.
>
> "(*c*) A similar call to all employers to effect such industrial reorganization as is necessary to meet emergencies arising out of the war."

A united appeal for this great national purpose seemed to me especially desirable, and it is with the deepest regret that I learn of your refusal to join in such an appeal.

Without presuming to question a decision which must rest upon your own judgment, you will permit me to confess my inability to realize in what way your future action would be trammelled by naming five members on your side of the House to serve upon such a committee.

The conversation to which I alluded took place when, among other things, I discussed with you the proposals of the Government with regard to railway legislation, and I have a perfect recollection of the answer which you made.

Believe me,

Yours faithfully,

R. L. BORDEN.

The Right Honourable Sir Wilfrid Laurier, P.C., G.C.M.G.,
Ottawa.

RETURN

[105]

To an Order of the House of Commons, dated the 7th February, 1917, showing a copy of the contract between the Government and the P. Lyall & Sons Construction Company for the reconstruction of the Parliament Building.

E. L. PATENAUDE,
Secretary of State.

THIS AGREEMENT made this 29th day of September, in the year 1916—

BETWEEN

P. LYALL & SONS CONSTRUCTION COMPANY, LIMITED, hereinafter called "the Contractor", of the First Part,

and

HIS MAJESTY THE KING, represented by the Minister of Public Works of Canada, of the Second Part.

Whereas the party of the first part, for the consideration hereinafter mentioned, has agreed with the party of the second part to do, furnish and perform the works, materials, matters, and things required to be done, furnished and performed, in the manner hereinafter described, in connection with the following work or works, namely:—the reconstruction of the Parliament Buildings at Ottawa:

Now this indenture witnesseth, that the said parties hereto hereby covenant, promise and agree, each with the other as follows:—

1. In this contract the following words shall, unless the context requires a different meaning, have the following meanings respectively, that is to say:—

"Contractor" or other words relative thereto, or of like import, shall mean and include, irrespective of sex or number, the party or parties of the first part as above designated or described, jointly and severally, and their and each of their executors, administrators, curators or successors, or assigns;

"His Majesty" or other words relative thereto, or of like import, shall mean and include the reigning Sovereign, or the successors or assigns of the Sovereign;

"Minister" shall mean the person holding the position, or acting in the capacity of the Minister of Public Works, for the time being, and shall include the person holding the position or acting in the capacity of the Deputy Minister of Public Works, for the time being;

"Architects" shall mean John A. Pearson and J. O. Marchand, who have been appointed architects of the works, or any other person or persons who may, from time to time, be appointed by the Minister in their place or stead, provided that in case of disagreement between the said John A. Pearson and J. O. Marchand, the decision of John A. Pearson shall prevail;

"Joint Committee" shall mean the committee of members of Parliament appointed by the Prime Minister and the leader of the Opposition pursuant to the vote of Parliament at its last session;

"Board" shall mean the persons appointed by the Joint Committee to pass upon and direct the form and conditions of tenders for all materials required in the reconstruction of the Parliament Buildings, etc.

"Work or works" shall mean the whole of the work and materials, matters, and things required to be done, furnished and performed by the Contractor under this contract.

2. All the covenants and agreements in this contract binding on, and all the provisions in this contract inuring to the benefit of the Contractor, shall respectively, be binding on, and inure to the benefit of the executors, administrators, curators, successors and assigns of the Contractor and all the covenants and agreements in this contract binding upon, and all the provisions in this contract inuring to the benefit of His Majesty, shall respectively, be binding upon and inure to the benefit of the successors and assigns of His Majesty.

3. The Contractor agrees to perform the work of reconstruction of the Parliament Buildings at Ottawa, in strict accordance with the plans and specifications prepared and to be prepared by the architects for the purposes of the works. For the purpose of identification, the preliminary specifications and drawings have been signed by the Architects and the Contractor and represent in general the extent of the undertaking.

4. His Majesty, in consideration of the premises and subject to the performance and observance on the part of the Contractor, of all the covenants, provisos, and conditions in this contract contained, will pay to the contractor eight per cent (8%) on the total cost of the building, dating from February 3, 1916, up to the amount of four million dollars ($4,000,000), and seven per cent (7%) on the cost in excess of that amount up to the further sum of $1,000,000, it being understood and agreed that the Contractors are not to receive any commission on the cost in excess of $5,000,000, said cost to be exclusive of the architects' and the Contractor's commissions, and cost of structural steel; payment to be made monthly on the written certificate of the architects, which certificate shall be a condition precedent to the right of the Contractor to be paid monthly or final payment. The Contractor covenants that from commencement to completion, the said work will have the personal supervision of Mr. William Lyall, together with the services of its general organization, the services and expenses of its executive and administrative officers, accounting department, contract department, and estimate department, except as provided by section 10 hereof, without further compensation.

5. The Contractor shall, for the above-mentioned commission, at its own expense, furnish all such plant as derricks, hoisting machines, concrete mixers, and such general machinery as may be required for the carrying out of this contract, fully equipped and in good working condition, to the satisfaction of the Minister; and the Contractor shall also, for the said commission, and at its own expense, provide such special plant as may be required for the carpenter and cabinet work, marble and stone cutting work required for the said building, and such as is usually sublet to other parties than the general contractor. His Majesty will pay the cost of transportation of such plant to and from Montreal only and the installation thereof. The Contractor shall keep all the said plant in good repair and efficient for the work for which it is intended; the cost of such repairs to be borne by His Majesty.

6. All such plant as picks, scaffolding, shovels, crow-bars, and minor small tools, shall be purchased for the work and become the property of His Majesty and be charged in as part of the cost of the said building.

7. It is expressly understood and agreed that the Contractor will not engage on any part of this work as sub-contractor either directly or, except with the consent of the Minister, by or through any other organization in which it may be interested.

8. The Contractor shall have full power to manage the construction of said buildings, to purchase all materials therefor, employ all labour required therefor, and to do all work necessary for the completion thereof, all subject to the approval of the Minister, the Architects and the Joint Committee.

9. The officers of the Contractor in charge of the work shall give constant personal supervision to the execution of any work sublet by the Contractor. His Majesty shall receive the benefit of all discounts, rebates, drawbacks, and other concessions of whatever nature which the Contractor may have or obtain by reason of the purchase of large quantities of materials in its general business or otherwise, and the Contractor shall, under the direction of the Board appointed by the Joint Committee, use its best endeavours to secure all materials at the lowest price at which proper materials can be obtained.

10. For the purpose of this agreement the following items shall be included in the cost of said building and shall in every case be subject to check and approval by the architects:—

All expenditures for pay-rolls;

The cost of the materials used in the building, and their preparation, inspection and delivery at the site of the said building;

The salaries of Contractor's staff at the site of said building, the number, duties and remuneration of said staff to be subject to approval of the Minister;

The expense of equipping and maintaining temporary offices, buildings, etc., for the plant and material at the site of said building and where designated by the architects; also telephone, telegraph, and express charges and stationery incidental to and necessarily connected with the said work.

11. The Contractor shall co-operate to the fullest extent possible with the Department of Public Works and the architects and Joint Committee in all their efforts to advance the entire work and to plan and execute the said work.

12. The Contractor shall construct, complete and finish said building in the most thorough, workmanlike and substantial manner with the utmost despatch and economy and in every respect to the full satisfaction of the architects.

13. The work under this contract shall be either executed directly by the organization of the Contractor or sublet to contractors as may be directed from time to time by the architect and Joint Committee, and approved by the Minister.

14. The Contractor shall execute the different portions of the work in connection with this contract as they shall be ready and as directed by the architects and shall deliver the said building fully completed to the Minister at the earliest date consistent with good workmanship, and in no event later than the 31st December, A.D. 1918. Time shall be deemed to be material and of the essence of this contract. And it is distinctly understood and agreed that in the case the Contractor shall fail to complete and deliver the said building to the Minister on or before the said date, no commission shall thereafter be payable to the Contractor on any part of the cost of completing the same subsequent to such date.

15. Whenever in the opinion of the Architect it is necessary or expedient that the said work or any portion of it should be stopped, or that the force employed thereon should be diminished, the architects may stop such work or diminish such force, and upon being requested in writing to do so by the architects, the Contractor shall stop the work or reduce the force, as the case may be, in accordance with such request, and the Contractor shall have no claim for damages by reason thereof. Such writing shall be signed by the architects and delivered to the Contractor or to some person on the work representing the Contractor.

16. In the event of Parliament failing to vote the amount required by the Contractor, at the request of the Minister, the Contractor shall advance whatever funds may be necessary for the carrying on of the work, and the Contractor shall be entitled to be paid interest at the rate charged it by the Bank but such interest shall not in any event exceed six (6) per cent per annum on all moneys so advanced.

17. If there be any stoppage of the said work upon the written direction of the architects, or if its progress be materially delayed by reason of any act or neglect of the architects or any of the agents or employees of His Majesty, or any delay in the delivery of such materials for the work as are to be supplied by His Majesty, the time herein specified for completing the said work shall be extended for a period equal to the time of such stoppage or delay, and the Contractor shall have no further or other claim therefor, or from anything arising therefrom or caused thereby. The right of the Contractor to such extension shall be deemed to have been waived unless a claim therefor, stating the occasion and nature thereof shall be made by him in writing and delivered to the architects and to the Minister at the time of such stoppage or delay.

18. The Contractor shall not bring or permit to be brought anywhere on or near the said work any spirituous or intoxicating liquors, and if any foreman, labourer or other employee or contractor shall, in the opinion of the architects or Minister, be intemperate, disorderly, incompetent, wilfully negligent or dishonest in the performance of his duties, he shall, on the direction of the architects, be forthwith discharged and the Contractor shall not employ or permit to remain upon the work, any person who shall have been discharged from the said work for any or all of the said causes.

19. For work to be sublet by the Contractor, tenders addressed to the architects shall be procured by the Contractor under the direction of the architects and the Board appointed by the said Joint Committee for that purpose, and no sub-contract shall be awarded except under the instructions of the architects and with the approval of the Minister, said Board and Joint Committee. All purchases of materials by the Contractor shall be subject to the approval of the said architects, and said Board and Joint Committee. When such work is contracted for, the Contractor shall assume all responsibility for same and shall follow up said work and see that it is manufactured, delivered and erected in a proper manner and at the proper times for the general advancement of the whole work.

20. The Contractor shall be responsible for the quality of the workmanship of sub-contractors, and any and all costs and expenses arising from the assumption of this responsibility by the Contractor shall be borne by him and shall not form any part of the cost of said building.

21. The Board shall require all sub-contractors in submitting tenders to accompany each tender by an accepted cheque on a chartered bank, payable to the Receiver General of Canada equal to ten per cent (10%) of the amount of the tender, which will be forfeited if the person tendering decline to enter into a contract when called upon to do so or fail to complete the work contracted for. If the tender be not accepted, the cheque will be returned. Said deposit of ten per cent (10%) will be used for the benefit of the Contractor in case of default under clause 20.

22. All materials, which in the opinion of the architects are of a quality inferior to or other than that called for by the drawings and specifications and all work which in the opinion of the architects is defective or insufficient must be remedied or replaced at once on the architects' order and the cost must be borne by the Contractor, and shall not be included in the cost of the building as herein defined, but any omission or failure on the part of the architects to disapprove of or reject any work or materials at any time prior to the final acceptance of the work or portion thereof

shall not be construed to be an acceptance of defective work or materials, notwithstanding any payments during the progress of the work during any period. It is understood and agreed that no progress or final payment shall relieve the Contractor from liability to make good at any time any defects in materials furnished or work performed under this contract; but, on the contrary, the Contractor shall, at its own expense, upon demand of the architects, at any time before the period of twelve months after acceptance of the whole work has elapsed make good any such defects.

23. The Contractor indemnifies the Government against any liability which may arise against the Crown for any death or injury to person or property on the work, and in order to insure this shall procure sufficient liability insurance to the approval of the Minister, indemnifying and saving His Majesty and the Contractor harmless in respect thereof.

24. The Contractor shall also procure insurance on said buildings while under construction and all plant and materials on the site thereof against damages by fire, in such amounts as may be determined by the architects and Board to protect the interests of both His Majesty and the Contractor as they may appear.

25. The Contractor shall also procure all permits for the execution of the work, for sewer connections, water connections, meters and meter connections, and shall obtain all necessary permits for the general construction of the buildings and file all necessary plans with the proper authorities having jurisdiction.

26. All premiums, fees, etc., incidental to clauses Nos. 23, 24, and 25, shall be paid by His Majesty and be included as part of the cost of the work.

27. All machinery, tools, plant, materials, equipment, articles, and things whatsoever provided by the Contractor shall, from the time of their being so provided, become and until the final completion and acceptance by the Minister of the said work, be the property of His Majesty for the purposes of the said work, and be a guarantee for the due fulfilment of all the covenants herein provided, and the same shall on no account be taken away, or used, or disposed of, except for the purposes of the said work, without the consent of the architects. In the event of the work being taken out of the Contractor's hands, all materials, articles, and things whatsoever, and all horses, machinery, tools, plant, and equipment, and all rights, proprietary or otherwise, licenses, powers, and privileges, whether relating to or affecting real estate or personal property, acquired, possessed, or provided by the Contractor for the purposes of the work, or by the architects under the provisions of this contract, shall remain and be the property of His Majesty for all purposes incidental to the completion of the works, and may be used, exercised, and enjoyed by His Majesty as fully to all intents and purposes connected with the works as they might theretofore have been used, exercised, and enjoyed by the Contractor; and His Majesty may also, at the option of the Minister sell or otherwise dispose of, at forced sale prices, or at public auction or private sale, or otherwise, the whole or any portion or number of such materials, articles, things, horses, machinery, tools, plant, and equipment, at such price or prices as the Minister may see fit, and detain the proceeds of any such sale or disposition and all other amounts then or thereafter due by His Majesty to the Contractor on account of, or in part satisfaction of any loss or damage which His Majesty may sustain or have sustained by reason aforesaid.

28. The Contractor shall promptly pay for all labour, services, or materials used in or about the construction of the work.

29. The Architects only shall interpret the plans, drawings, specifications and shall settle any doubts, disputes, or differences with respect to them or to the true intent and meaning of this contract, or the manner of performance thereof, or to the determination of the sum or sums or balance of money due or to be paid to or received

from the Contractor, and the decision of the Architects in all such matters shall be final and binding on both parties to this contract. The Contractor shall carry out and fulfil promptly and satisfactorily all such orders or directions as may be issued by the Architects from time to time.

30. The Contractor shall with each monthly estimate, submit to the Architects for check and approval, actual pay-rolls and duplicate vouchers, setting out all expenditures made under this contract during the next preceding calendar month, and any difference between the amount shown by the said vouchers and pay-rolls and the amount paid on estimate for such next preceding calendar month, shall be adjusted between the Minister and the Contractor in connection with the next succeeding payment.

31. The Contractor shall keep on the site, books containing complete daily accounting records of the work, including all pay-rolls, accounts, contracts, vouchers, and other papers in connection with it, and the Minister, the said Committee, and the Architects and the officials employed by them, shall at all times be permitted to inspect and audit the same.

32. Pursuant to the provisions of the Statute in such case made and provided, no member of the Senate or of the House of Commons of Canada, or individual employed in connection with the work, shall be admitted to any share of this contract or to any benefit to arise therefrom.

33. No work whatever shall at any time or place be carried on during Sunday, and the Contractor shall take all necessary steps for preventing any foreman or agent or men from working or employing others on that day; provided that in cases of urgency or necessity, as to which the architects shall be the judge, work may be carried on on Sunday with the permission of the architects.

34. The Contractor shall comply with, and the works shall be carried on subject to all regulations made by any lawful authority and applicable to said works, and all orders given by the architects with respect to sanitation or preservation of health on the works. The Contractor shall make adequate arrangements, to the satisfaction of the architects, for the medical and sanitary supervision of all its employees.

35. The Contractor shall comply with and be subject to all terms, stipulations and conditions contained in the following fair wages clauses:—

(*a*) No labourers shall be employed on or about the works hereby contracted for who are not citizens or residents of Canada, but the Minister may, in writing, waive the provisions of this clause, either in general or to a limited extent, should he deem it expedient to do so;

(*b*) The minimum rate of wages to be paid by the Contractor for the labour of any employee, or the minimum rate of hire for any team, employed in or about the works, shall be at the rate specified in the fair wages schedule to be furnished by the Department of Labour for the same or similar class of labour as that in which such employee is engaged, or for the hire of teams respectively;

(*c*) The number of working hours for employees in the day or week shall be in accordance with such statute or statutes of Canada as may now or hereafter be passed, and if there is no such statute then in accordance with the custom of the same or similar trades or classes of labour in the district where the work is being carried on—to be determined in case of dispute, by the Minister of Labour; and no employee shall be required to work for longer hours except for the protection of life or property, or in case of other emergencies, when the necessity therefor is confirmed by the architects.

(*d*) In case any labour is required in or about the works for which, in the opinion of the architects, no rate is fixed in the said schedule, the architects, or other officer authorized by them, may fix the minimum rate of wages payable in respect thereof, which shall not be less than the rate of wages generally accepted as current for competent workmen in the same or similar trades or classes of labour in the district where the work is being carried on.

36. When, in the opinion of the architects, this agreement has been completely performed within the time herein provided, subject to the foregoing provision as to extension, they shall certify the same in writing under their hand with a final estimate of the work done by the Contractor and a statement of the amount due and unpaid, and the Minister shall, within sixty days after such completion, pay to the Contractor the full amount which shall be so found due and upon delivery by the Contractor to the Minister, if required, of a good and valid release and discharge from any and all claims and demands for and in respect of all matters and things growing out of or connected with this contract or the subject-matter thereof and of and from all claims and demands whatsoever.

37. Should the Contractor at any time during the progress of said work cause any unnecessary neglect or suspension of the work, or fail, omit or refuse to comply with the terms of this contract, upon receipt of the architects' certificate of such neglect or suspension or such failure, omission or refusal, and stating that there is sufficient cause for action, the Minister may and shall have the right and power to enter upon and take possession of the premises and to discharge the said Contractor and all employed under him, and this contract "shall thereupon terminate and cease after five days' notice in writing to the Contractor by the Minister and the Minister may retain all plant and material provided for the work, and employ such means as he may see fit to complete the work.

38. In the event of this contract being terminated as above provided, the Contractor shall be paid no further amount as compensation under this contract. The architects shall make a final estimate of the work done by the Contractor and a statement of the amount due and unpaid, and the Minister shall within thirty days of such termination pay to the Contractor the amount shown as due by such estimate. His Majesty shall thereupon be absolutely and forever released from all liability whatsoever to the Contractor in respect to this contract and all acts, matters and things in anywise connected therewith, but the Contractor shall nevertheless remain liable for all loss or damage which may be suffered by His Majesty by reason of the non-completion by the Contractor of the work.

39. It is understood and agreed by the parties hereto that this agreement shall not be assigned by the Contractor without the written consent of the Minister.

40. The Contractor, its agents and all workmen and persons employed by it, or under its control, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work, and the Contractor shall be solely responsible for all damages, by whomsoever claimable, in respect of any injury to persons or to lands, buildings, structures, fences, trees, crops, roads, ways, ships or property of whatever description, and in respect of any infringement of any right, privilege or easement whatsoever occasioned in the carrying on of the works or any part thereof, or by any neglect, misfeasance or nonfeasance on the Contractor's part or on the part of any of its agents, workmen or persons employed by it or under its control, and shall at its own expense make such temporary provisions as may be necessary to ensure the avoidance of any such damage, injury or infringement, and to prevent the interruption of or any danger or menace to the traffic on any public or private road, and to secure to all persons and corporations the uninterrupted

enjoyment of all their rights in and during the performance of the said works; and the Contractor shall indemnify and save harmless His Majesty from and against all claims and demands, loss, costs, damages, actions, suits or other proceedings by whomsoever made, brought or prosecuted in any manner based upon, occasioned by, or attributable to any such damage, injury or infringement.

In witness whereof the Contractor has executed these presents and these presents have been signed on behalf of His Majesty by the Minister and countersigned by the Secretary of the Department of Public Works, and the seal of the said department has been hereto affixed the day and year above written.

Signed, sealed and delivered by the Contractor, in the presence of :
C. H. ALLEN.

P. LYALL & SONS CONSTRUCTION CO., LIMITED.

WILLIAM LYALL. [L.S.]

Signed, sealed and delivered by His Majesty, in manner aforesaid, in the presence of:
K. G. SPANGENBERG.
[L.S.]

R. ROGERS,
Minister of Public Works.

R. C. DESROCHERS,
Secretary.

Order in Council placing Wheat, Wheat Flour, and Semolina on the Free List.

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P.C. 1062.

AT THE GOVERNMENT HOUSE AT OTTAWA.

Monday, the 16th day of April, 1917.

PRESENT:

His Excellency the Governor General in Council.

Whereas the Minister of Finance reports that certain conditions arising out of the war seriously affect prices obtainable in Canada for wheat, especially of the lower grades;

And whereas in normal times there exists a good commercial export demand for milling purposes from Great Britain and the Continent for wheat of all grades;

And whereas this demand has for some time past almost entirely ceased on account of shortage of ocean shipping (due to submarine warfare), practically all available tonnage being required to transport grain of the higher grades and flour made therefrom, purchased in Canada and the United States by the British and allied Governments for their respective needs;

And whereas in consequence of this condition much Canadian wheat is being exported to the United States market for sale there, notwithstanding the customs duty payable thereon under the provisions of the United States tariff;

And whereas from inquiries recently made from the Board of Grain Commissioners for Canada and other authentic sources the Minister of Finance is satisfied that the prices now prevailing in Canada for wheat, particularly of the lower grades, are, owing to the cause above mentioned, much lower than the prices obtaining therefor in the United States; in fact there are strong grounds for the belief that advantage is being taken of the situation to maintain prices of the said grades at figures lower than are warranted by general market conditions, and from information at hand it appears that there still remains a large amount of last year's Canadian crop unmarketed;

And whereas it is desirable at a time when a special appeal is being made for increased agricultural production to supply grain and foodstuffs to Great Britain and her Allies, which now include the United States of America, that the Canadian farmer should feel that he will obtain the best market prices obtainable for the product of his industry;

And whereas the Minister of Finance is of opinion that it is in the circumstances advisable that such action should be taken which will give to Canadian wheat free access to the markets of the United States in lieu of the commercial markets in Great Britain and on the European Continent formerly available under the conditions then existing, and, with this object in view, he directs the attention of His Excellency to certain provisions of the Customs Tariff of the United States. By item 644 thereof wheat, wheat flour, semolina, and other wheat products, shall be entered free of duty from countries which do not impose a duty on wheat or wheat flour or semolina imported from the United States; otherwise the duty upon wheat is fixed at ten cents

per bushel, and upon wheat flour at forty-five cents per barrel, and upon semolina and other products of wheat ten per centum ad valorem;

And whereas if Canada should place wheat, wheat flour, and semolina upon the free list our wheat and wheat products would gain free entry to the markets of the United States;

And whereas it is desirable in the national interest that, for the reasons stated above, free access should be obtained to the markets of the United States for Canada's wheat;

Therefore His Excellency the Governor General in Council, under the authority of the War Measures Act, 1914, section 6, is pleased to order and it is hereby ordered that wheat, wheat flour, and semolina be transferred to the list of goods which may be imported into Canada free of duty of customs.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

RETURN

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To an order of the House of Commons, dated 23rd April, 1917, showing a copy of all contracts and agreements between Sir Charles Ross, his successors or assigns and His Majesty the King, represented by the Minister of Militia and Defence, since and including the agreement between them dated the 27th day of March, A.D. 1902.

E. L. PATENAUDE,
Secretary of State

MEMORANDUM OF AGREEMENT made in duplicate this 27th day of March, 1902,

BETWEEN

Sir CHARLES ROSS, Bart., of Balnagowan, hereinafter called the contractor, of the first part,

and

HIS MAJESTY THE KING, represented by Hon. F. W. BORDEN, MINISTER OF MILITIA AND DEFENCE OF THE DOMINION OF CANADA, hereinafter called the Minister, which expression as herein used includes also the successors in office of the said Minister of Militia and Defence, His Majesty so represented being hereinafter referred to as the Government, of the second part.

Whereas it is considered in the general interests of Canada that the rifles required by the Government for the purposes of Militia and Defence should be manufactured in Canada, and whereas the Contractor has proposed by himself, or his assigns to undertake the establishment and operation of a suitable factory in Canada for the manufacture of such rifles, and to supply the Government with the rifles so required, manufactured at the said factory and delivered at a cost to the Government not exceeding that which the Government would have to pay for similar rifles purchased by or for the Government as heretofore on the English market.

This agreement therefore witnesseth, and it is agreed by and between the Contractor and the Government, as follows:—

1. The Contractor is to establish at or near the city of Quebec in Canada a factory for the manufacture of rifles, with the necessary plant.

2. The Contractor undertakes to deliver to the Government between the first day of January, 1903, and the first day of January, 1904, 12,000 rifles manufactured at the said factory corresponding and equal in every respect to a standard sample rifle which is to be approved by the Minister, such rifles to be delivered by monthly even quantities, as nearly as may be, of 1,000.

3. The Government shall be bound and entitled to purchase from the Contractor all rifles required for the use of the Government during the continuance of this contract. The Contractor agrees that if the Government so desires and signifies its

desire in writing on or before the 30th day of September in any year after the year now current the Contractor will deliver to the Government within the year following the next succeeding first day of January a number of rifles not less than 10,000 manufactured at the said factory, such rifles to be delivered by monthly even quantities, as nearly as may be, of not less than 800. If during any year the Government shall require any number of rifles in excess of the number hereinbefore specified for that year the Government shall immediately notify the Contractor of the additional number required, and the Contractor shall do his utmost to manufacture at the said factory and deliver to the Government all such rifles as may be reasonably required, and if need be he shall operate the factory at any time twenty-four hours per day, and he shall if required furnish the total output of the said factory to the Government; provided, however, that in case of war, actual or threatened, or any national emergency, requiring, in the opinion of the Government, the immediate supply of additional arms, the Contractor upon receiving any notice or demand from the Government for any number of rifles specified to be urgently required in view of this proviso shall, within thirty days after receiving such notice or demand, notify the Government in writing of the number of rifles which he will undertake to furnish in accordance with such notice or demand, and the Government shall not under any circumstances be bound to purchase from the Contractor in respect of any such notice or demand any number of rifles in excess of the number which the Contractor so notifies the Government that he will be able to supply.

4. All the said rifles hereby contracted for are previous to delivery to be inspected by the inspector of small arms of the Government of Canada, and upon such inspection the said rifles being found up to sample as aforesaid delivery shall be taken as complete at the factory.

5. If at any time or from time to time the Government should desire to have any changes in or modification of the rifle to be manufactured and supplied by the Contractor the Government may give to the Contractor at least twelve months' notice in writing specifying such changes or modification, and requiring the Contractor at the expiration of the period of such notice to manufacture and deliver rifles so changed or modified, and the Contractor shall thereupon be bound upon and after the expiration of the said period to manufacture and deliver the rifles subject to such changes and modification, and the said standard sample rifle so furnished as aforesaid shall in respect of all rifles to be delivered after the expiration of the said period be deemed to have been altered or modified in accordance with the changes or modification specified by the said notice.

6. If a new rifle shall be invented which the Government shall desire to adopt or use the Government may furnish to the Contractor a standard sample of such new rifle, and give the Contractor twelve months' notice in writing requiring that the rifles to be delivered by the Contractor upon and after the expiration of the period of such last mentioned notice shall correspond to the standard sample of such new rifle so furnished; the Government to protect the Contractor against any actions for infringements of patents so far as such new rifles supplied to the Government are concerned, and upon and after the expiration of the said period all rifles to be delivered by the Contractor shall accordingly correspond to such substituted standard sample, and the Contractor agrees to originally lay out and adapt his plant, machinery, etc., so as to provide the best facilities which can reasonably be foreseen to enable him to apply the same to the manufacture of any such new rifle which may be desired.

7. The Government shall furnish to the Contractor a standard sample rifle mentioned in the second clause of this contract on or before the tenth day of April, 1902. If for any reason such standard rifle should not be furnished until after the said date the Contractor shall, if he so desires, be entitled to equivalent extension of the time herein provided for manufacture and delivery.

8. The Government shall pay for the said 12,000 rifles mentioned in the second clause of this contract at the rate of $25 for each such rifle. The Government shall pay out of moneys to be appropriated by Parliament for the purpose for all rifles subsequently ordered as herein stipulated the same price of $25 for each of such rifles, unless one of the parties hereto shall upon the occasion of any demand for further rifles notify the other of such parties that the price of such rifles in similar quantities in the markets of Great Britain has relatively to the present price increased or diminished, in which case the aforesaid price of $25 shall no longer govern, but the price for the rifles so ordered and to be thereafter ordered shall depend upon a further agreement of the parties, and in default of agreement the price to be fixed as provided in the 9th clause hereof. The price for all rifles herein contracted for or to be supplied pursuant to the provisions of this agreement shall be payable upon delivery; provided, however, that after the establishment of the said factory and supplying of the plant for the running of the same the Contractor shall be entitled to payment in advance of delivery of moneys actually expended upon the rifles or parts thereof or fixtures therefor to be delivered in that year upon a statement certified by him of the amount so spent upon establishing the fact of such expenditure to the satisfaction, testified by his signature of such statement, of the government inspector of small arms, such payments in no case to exceed 75 per cent of the price of such rifles, the Contractor undertaking whenever such advances are made to insure and keep insured the said rifles, parts and fixtures against loss or damage by fire for the benefit of the Government to the extent of such advances.

9. Provided, however, that in case of any changes in or modification of the rifle to be manufactured by the Contractor hereunder, pursuant to any such notice as aforesaid, or in case of the adoption by the Government of a new rifle to be invented as aforesaid, the price to be paid shall be the price above named, or such price increased or diminished by a sum to be agreed upon between the Government and the Contractor, having regard to the question as to whether such changes or modification increase or diminish the cost of production, or in case of the adoption of a new rifle, a price to be agreed upon between the Government and the Contractor; provided, further, that in default of agreement the amount of such increase or diminution of the price, as the case may be, shall be settled by two experts, one of whom shall be chosen by the Government, and the other by the Contractor, whose decision, if unanimous, shall be final, while in the event of a difference between them the two experts so named shall name a third, and the decision of any two of the three shall be binding; it being the intention of this agreement that the price of the rifles furnished hereunder shall so far as is possible be the same as that of similar rifles in like quantities purchased by or for the Government from the British manufacturers in the open market in England and delivered in Ottawa.

10. The Contractor shall be permitted to import into Canada all tools and machinery not manufactured in Canada up to the required standard necessary for the said factory, and also all material, or parts in the rough, unfinished, to be used in rifles to be manufactured by him for the Government, free of duty, or in case of payment by the Contractor of any duty on any such tools, machinery, or material or parts as aforesaid, the Contractor shall be entitled to a drawback or remission of the amount so paid; provided, also, that the Contractor shall be entitled to import free of duty or shall be entitled to drawback or remission of duty paid in respect of the finished parts to be used in any such rifles, consisting of screws, nuts, bands, and springs; and provided further that if at any time during the continuance of this contract the demand of the Government for rifles shall be such as to make it necessary for the Contractor to enlarge the capacity of his factory, then the machinery, plant, and material imported by him for that purpose, not manufactured in Canada up to the required standard, shall similarly be entitled to free entry or drawback or remission of duty paid.

11. The Contractor shall not be bound to deliver at the time specified in the case of strikes or in the event of unforeseen occurrences beyond his control preventing manufacture, but in such case the Contractor shall have an equivalent extension of the time, he hereby undertaking to resume work as soon as possible.

12. The standard sample rifle to be approved by the Minister, as provided in paragraph 2 of this agreement, and all standard samples substituted therefor pursuant to this agreement shall remain in the custody of the Minister.

13. Any notice to the Contractor hereunder shall be deemed to be well and sufficiently given if the same be left at the Contractor's office or mailed in any post office to the Contractor at the said factory.

14. This contract is hereby pursuant to the provisions of the 16th section of chapter 11 of the Revised Statutes of Canada made subject to the express condition that no member of the House of Commons of Canada shall be admitted to any share or part of such contract or to any benefit to be derived therefrom.

15. This contract shall inure to the benefit of and shall be binding on the executors, administrators, and assigns of the Contractor, and where the context admits any reference therein to the Contractor shall be taken to extend equally to his executors, administrators, and assigns.

16. The wages to be paid in the execution of this contract shall be those generally accepted as current in each trade for competent working men and working women in the district where the work is carried out.

In witness whereof the Contractor and the Minister have hereunder set their hands and seals at Ottawa aforesaid the day and year first above written.

Signed, sealed and delivered in the presence of L. J. PINAULT.

CHARLES L. ROSS,
F. W. BORDEN,
Minister of Militia and Defence.

MEMORANDUM OF AGREEMENT made in duplicate this 4th day of May, One thousand nine hundred and eight,

BETWEEN

Sir CHARLES ROSS, Baronet, of Balnagowan, Scotland, hereinafter called the Contractor, of the first part,

and

HIS MAJESTY THE KING, represented by the Honourable Sir FREDERICK W. BORDEN, MINISTER OF MILITIA AND DEFENCE, of the Dominion of Canada, hereinafter called the Minister, which expression as herein used indicates also the successors in office of the said Minister of Militia and Defence; His Majesty so represented being hereinafter referred to as the Government, of the second part.

Whereas it is considered in the general interests of Canada that the bayonets and scabbards for the rifle manufactured at present by the Contractor for the Government (herein called the Ross rifle) required by the Government for the purpose of Militia and Defence should be manufactured in Canada;

And whereas the Contractor has proposed by himself, or his assigns, to undertake the establishment and operation of a suitable factory in Canada for the manufacture of such bayonets and scabbards, and to supply the Government with the bayonets and scabbards so required, manufactured at the said factory and delivered to the Government:

This agreement therefore witnesseth, and it is agreed by and between the Contractor and the Government as follows:—

1. The Contractor is to establish and operate in Canada a factory for the manufacture of bayonets and scabbards, with the necessary plant.

2. The Contractor undertakes to deliver to the Government, within three years after the delivery to the Contractor, by the Minister, of an approved standard pattern bayonet and scabbard and specifications and drawings therefor, 52,000 bayonets and scabbards manufactured in Canada at the said factory and corresponding and equal in every respect to the said standard pattern bayonet and scabbard and in accordance with the said specifications and drawings therefor; such bayonets and scabbards to be delivered by monthly even quantities as nearly as may be, deliveries to begin within one month of the completion by the Contractor of the necessary machinery, fixtures, and gauges; such completion by the Contractor to be carried out with all due diligence, and to be immediately notified in writing to the Minister. It is further understood and agreed that the Contractor shall not begin the manufacture of any bayonets or scabbards whatsoever under this contract until the said standard patterns, specifications, and drawings have been delivered to him by the Minister, which said standard patterns, specifications, and drawings shall be so delivered with due promptness and diligence.

3. The Government shall be bound and entitled to purchase from the Contractor all bayonets and scabbards required for the Ross rifle for the use of the Government during the continuance of this contract. The Contractor agrees that if the Government so desires and signifies its desire in writing on or before the 31st day of December, in any year after the year ending December 31, 1909, the Contractor will deliver to the Government within the year following the next succeeding first day of April, a number of bayonets and scabbards, not less than 10,000, manufactured at the said factory, such bayonets and scabbards to be delivered by monthly even quantities, as nearly as may be, of not less than 800. If during any year the Government shall require any number of bayonets and scabbards, in excess of the quantity hereinbefore specified for that year, or notified to the Contractor as aforesaid, the Government shall immediately notify the Contractor of the additional number required, and the Contractor shall do his utmost to manufacture at the said factory and deliver to the Government all such bayonets and scabbards as may be reasonably required, and he shall, if required, furnish the total output of the said factory to the Government: provided, however, that in case of war, actual or threatened, or any national emergency, requiring, in the opinion of the Government, the immediate supply of additional bayonets and scabbards, the Contractor, upon receiving any notice or demand from the Government for any number of bayonets and scabbards specified to be urgently required, in view of this proviso, shall within thirty days after receiving such notice or demand notify the Government in writing of the number of bayonets and scabbards which he will undertake to furnish in accordance with such notice or demand, and the Government shall not under any circumstances be bound to purchase from the Contractor, in respect of any such notice or demand, any number of bayonets and scabbards in excess of the number which the Contractor so notified the Government that he would be able to supply.

4. All the said bayonets and scabbards hereby contracted for are to be inspected before delivery, with reasonable promptness and diligence, by the Inspector of Small Arms, or other inspector duly authorized by the Government; and if, upon such inspection, the said bayonets and scabbards are found equal to the standard patterns and in accordance with the specifications and drawings as aforesaid, delivery shall be taken as complete at the factory; otherwise they shall not be accepted nor shall payment therefor be made. But in case they are not accepted by the inspector, his reasons for non-acceptance shall, on request, be given by him to the Contractor.

5. If, at any time or from time to time, the Government should desire to make any change in or modification of the pattern or specifications of the bayonets and scabbards to be manufactured and supplied by the Contractor, the Government shall give the Contractor notice thereof in writing, specifying such changes or modifications, and requiring the Contractor to manufacture and deliver bayonets and scabbards so changed or modified; and the Contractor shall thereupon be bound to manufacture and deliver the bayonets and scabbards subject to such change or modification; and the said standard pattern bayonet and scabbard or specification therefor, so furnished as aforesaid, shall, in respect of all bayonets and scabbards to be delivered after the date of said notice, be deemed to have been altered or modified in accordance with the change or modification specified by the said notice.

Provided, however, that if the said change or modification necessitates the installation or acquisition of new materials, plant, machinery or premises by the Contractor, or otherwise is of such a nature that the Contractor cannot forthwith carry it into effect, the Government shall grant the Contractor such extension of time for the purpose as to the Government may seem reasonable in the premises; and the Contractor shall, if the Government so requires, discontinue all manufacture of bayonets and scabbards until such change or modification can be carried into effect.

Provided, further, that the loss or damage, if any, occasioned to the Contractor by any such change, modification or discontinuance of manufacture, shall be paid to the Contractor by the Government.

6. The Government shall pay for all bayonets and scabbards delivered under this contract at the rate of $5.25 for each bayonet with scabbard complete. Payment therefor shall be made upon delivery.

Provided, however, that after the establishment of the said factory in good running order and the installation of all necessary plant, the Contractor, in any year during the continuance of this contract, if and so long as he is not in default with respect to the delivery of bayonets and scabbards under this contract, shall be entitled, in advance of delivery, to payment of moneys actually expended upon all bayonets and scabbards or parts therefor, to be delivered in that year, such payment to be made upon the Contractor's certificate of the amount so spent, attested by the signature of the Government Chartered Accountant, who shall first satisfy himself of the fact of such expenditure; such payments in no case to exceed 75 per cent of the price of such bayonets and scabbards, the Contractor undertaking whenever such advances are made to insure and keep insured the said bayonets and scabbards, and parts thereof, against loss or damage by fire, for the benefit of the Government to the extent of such advances, and the Contractor agreeing that, to the extent of such advances, the Government shall have a lien upon the said bayonets and scabbards and parts thereof.

Provided, moreover, that in case of any change in or modification of the pattern of specifications of the bayonets and scabbards to be manufactured by the Contractor hereunder, pursuant to any such notice as aforesaid, the price to be paid shall be the price above named, or such price increased or diminished by a sum to be agreed upon between the Government and the Contractor, having regard to the question whether such change or modification increases or diminishes the cost of production; and further, that, in default of agreement, the amount of such increase or diminution of the price, as the case may be, shall be settled by two experts, one to be chosen by the Government, and the other by the Contractor, whose decision, if unanimous, shall be final; while, in the event of a difference between them, the two experts so named shall name a third, and the decision of any two of the three shall be binding.

7. And further provided that the said contract price of $5.25 may be either increased or diminished, by agreement between the Government and the Contractor, upon the demand of either party at the expiration of three years from the date

hereof, or of any subsequent period of five years during the continuance of this contract; and in default of agreement, the same course shall be taken as is provided in the next preceding paragraph.

8. The Contractor shall not be bound to deliver at the time specified in the case of strikes or in the event of unforeseen occurrences beyond his control preventing manufacture, but, in such cases, the Contractor shall have an equivalent extension of time, he hereby undertaking to resume work as soon as possible.

9. The standard pattern bayonet and scabbard to be approved by the Minister, as provided in paragraph 2 of this agreement; and all standard patterns substituted therefor pursuant to this agreement shall remain in the custody of the Minister.

10. Any notice to the Contractor hereunder shall be deemed to be well and sufficiently given if the same be left to the Contractor's office, or mailed in any post office to the Contractor at the said factory.

11. Pursuant to the provision of the 16th section of chapter 11 of the Revised Statutes of Canada, this contract is hereby made subject to the express condition that no member of the House of Commons of Canada shall be admitted to any share or part of such contract, or to the benefit to be derived therefrom.

12. This contract shall inure to the benefit of and shall be binding on the executors, administrators, and assigns of the Contractor, and where the context admits any reference therein to the Contractor such reference shall be taken to extend equally to his executors, administrators and assigns.

13. The wages to be paid in the execution of this contract shall be those generally accepted as current in each trade for competent working men and working women in the district where the work is carried out.

14. The factory and the work there being performed under this contract, shall be open at all reasonable times, to inspection, by the Inspector of Small Arms, or other inspector duly authorized by the Government.

15. It is understood and agreed that all provisions in this contract, relating to the payment of moneys to the Contractor, upon, or in advance of, delivery of bayonets and scabbards, are to be read subject to the granting of moneys by Parliament for that purpose; and that such provisions will be carried into effect only in case such moneys are so granted by Parliament.

16. It is understood and agreed between the parties that at any time after five years from this date, either party may give to the other twelve months' notice of intention to terminate this contract, and that upon the expiration of twelve months from the giving of such notice the obligations of this contract shall be at an end.

In witness whereof the Contractor and the Minister have hereunder set their hands and seals at Ottawa aforesaid, the day and year first above written.

Signed, Sealed and Delivered

in the presenc of

Eug. Fiset, Col.,
D.M., M. & D.

E. F. Jarvis,
Secy., Dept. M. & D.

CHARLES L. ROSS,

F. W. BORDEN,
Minister of Militia and Defence.

RETURN

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PENSION REGULATIONS WITH AMENDMENTS AND AS AMENDED TO FEBRUARY 28, 1917, WITH COPIES OF ORDERS IN COUNCIL.

SCHEDULE—PENSION REGULATIONS.

1. There shall be a Commission to be known as the Board of Pension Commissioners for Canada, consisting of three members appointed by the Governor in Council (hereinafter called the Commission). Each Commissioner shall hold office during good behaviour for a period of ten years from the date of his appointment, but may be removed at any time by the Governor in Council, for cause, and a Commissioner, on the expiration of his term of office, shall be eligible for reappointment. The Commissioners may, from time to time, elect one of their number to be chairman of the Commission.

2. Subject to the regulations hereinafter set out, the Commission shall have exclusive jurisdiction and authority to consider and make all grants and payments of military and naval pensions, and of gratuities, allowances and assistance to persons wounded, injured or incapacitated in the military or naval service of Canada (hereinafter called members of the forces), or to their dependant relatives, and shall have exclusive jurisdiction and authority to deal with all matters pertaining to such pensions, gratuities, allowances and assistance.

3. The Commission shall have authority to engage such clerical and other assistance as they may consider requisite for the transaction of their duties, and at such salaries as may be approved by the Governor in Council.

4. In the administration of their powers by the Commission great care shall be taken to insure all applications being considered and determined with the utmost despatch.

5. There shall be no appeals from the decisions of the Commission, but every applicant for a pension, gratuity, allowance or assistance may present his or her case either personally or by counsel before the full Commission sitting for the purpose of hearing the complaints of those who may have been dissatisfied with decisions given in the ordinary course of administration.

6. The pension or other grant awarded any member of the forces, or any dependant of such member, shall not be assigned, charged, attached, anticipated or commuted, nor shall any assignment, charge, attachment, anticipation or commutation be recognized in any way by the Commission or any officer or servant of the Crown.

7. All pensions awarded to members of the forces shall be determined by the disability of the applicant without reference to his occupation prior to enlistment.

8. Each case shall be subject to review at the end of a year from the time when the pension is first granted, except in those cases where the disability is obviously permanent, and then there shall be no further review.

9. No deduction shall be made from the amount awarded to any pensioner owing to his having undertaken work or perfected himself in some form of industry.

10. The Commission shall make provision for the vocational training of those who are desirous of taking advantage of it, and for the supplying, from time to time, of artificial limbs and appliances to those who would thereby be benefited.

11. The Commission shall have power to entrust to a reputable person for administration the pension or other grant to any pensioner or beneficiary, when the Commission is satisfied that it is being improvidently expended by the pensioner or beneficiary, and the expense of such administration, if any, shall be borne by the Crown.

12. The following shall be the scale of pensions for total disability:—

	Yearly.
Rank and file	$ 480 00
Squad, Battery or Company Sergt.-Major " " " Quartermaster Sergeant Colour Sergeant Staff "	510 00
Regimental Sergt.-Major not W.O. Master Gunner not W.O. Regimental Quartermaster Sergeant	620 00
Warrant Officer	680 00
Lieutenant	720 00
Captain	1,000 00
Major	1,260 00
Lieutenant-Colonel	1,560 00
Colonel	1,890 00
Brigadier-General	2,700 00

13. Those who are entitled to be awarded pensions shall be divided into six classes, and each member of each class shall be awarded a pension in direct proportion to his partial or total disability, as follows:—

Class 1—Total disability, 100 per cent.

For example—Loss of both eyes.
Loss of both hands, or all fingers and thumbs.
Incurable tuberculosis.
Loss of both legs, at or above knee joint.
Insanity.
Permanent extreme leakage of valves of heart.

Class 2—Disability, 80 per cent and less than 100 per cent—pension, 80 per cent of Class 1..

For example—Loss of one hand and one foot.
Loss of both feet.
Disarticulation of leg at hip.

Class 3—Disability, 60 per cent and less than 80 per cent—pension, 60 per cent of Class 1.

For example—Loss of one hand.
Loss of leg at or above knee.
Loss of tongue.
Loss of nose.

Class 4.—Disability, 40 per cent and less than 60 per cent

For example—Loss of one eye.
Loss of one foot.
Total deafness.
Loss of two thumbs.

Class 5—Disability, 20 per cent and less than 40 per cent—pension, 20 per cent of Class 1.

For example—Loss of one thumb.
Anchylosis of elbow, knee, shoulder, wrist or ankle.

Class 6—Disability under 20 per cent, a gratuity not exceeding $100.

For example—Total deafness in one ear.
Partial deafness in both.
Loss of index or other finger.

14. To those, up to and including the rank of lieutenant, who are totally disabled and in addition are totally helpless so far as attendance to their physical wants are concerned, a further allowance may be made of an amount not exceeding $250 a year, but such special allowance shall be subject to annual review.

15. Those, up to and including the rank of lieutenant, who are disabled and are entitled to a pension in the first, second or third class shall be paid, in addition to the personal pension, a special allowance of $6 a month for each child; of the rank of captain, $7 a month for each child; of the rank of major, $8 a month for each child; of the rank of lieut.-colonel, colonel or brigadier-general, $10 a month for each child. Child shall include a step-child and also a child in respect of whom the pensioner was *loco parentis,* but in either case only if the relation had been established before the pensioner's disability arose.

16. If a member of the forces has been killed, or has died as the result of injuries received, or disease contracted or aggravated while on active service, the widow, until remarriage shall be entitled to the equivalent of the pensions mentioned in Class 2, and also be entitled to draw the allowance for children. On the remarriage of the widow her pension shall cease, but she shall be entitled then to a gratuity of an amount equivalent to one year's pension.

17. If a member of the forces who has been killed, or had died, as a result of injuries received, or disease contracted or aggravated while on active service, was a widower, but leaves a child or children as defined in Regulation 15, said child or children shall receive an allowance of $12 per month each.

18. In the event of an application being made for a pension on behalf of a woman who has, without being married to a member of the forces, lived with him as his wife, or on behalf of the child or children of any such man or woman, the Commission shall be authorized to grant the customary pension and allowances for a wife or for a child or children, on being satisfied that the circumstances were such as to warrant the conclusion that the woman had at the time of enlistment and for a reasonable time previously thereto, publicly, been represented as the wife of said member, or if the Commission is satisfied that justice would be done by the recognition of such woman, for the purpose of a pension, as the wife of such member. On the marriage of the woman her pension shall cease but she shall be entitled to a gratuity of an amount equivalent to one year's pension.

19. No allowance shall be paid to or in respect of any child, if a boy, over the age of sixteen, or a girl over the age of seventeen, unless owing to mental or physical infirmity the child is incapable of earning a livelihood, in which case the allowance may, if in the discretion of the Commission it seems best, be continued until the child is twenty-one. No allowance shall be paid in respect of a child after the marriage of such child.

20. No pension or allowance shall be paid to a member of the forces or any person dependant upon him when the disability or death in respect of which the claim is made was occasioned by the negligence of such member, unless the Commission otherwise consents.

21. In all cases the claims by members of the forces for pensions must be made within two years of the date of the appearance of the disability in respect of which the claim is made.

22. A widowed mother, step-mother or grandmother wholly or mainly dependant upon a member of the forces who is killed or dies as the result of injuries received, or disease contracted or aggravated while on active service, if such member was without dependant children and unmarried, or a widower, shall be entitled to a pension of Class 3, provided, however, that no such woman shall be entitled to more than one pension. On the marriage of the woman such pension shall cease, but she shall be entitled then to a gratuity of an amount equivalent to one year's pension.

23. A father, wholly or mainly dependant upon a son who is a member of the forces and who is killed or dies as the result of injuries received or disease contracted or aggravated while on active service, if such member was without dependant children and unmarried, or a widower, shall be entitled to a pension of Class 3.

24. If a member of the forces to whom a pension has been granted in either Class 1 or in Class 2 dies, leaving a wife to whom he was married at the time of his incurring the disability in respect of which his pension was granted, or a woman occupying at said time the position of a wife within the purview of Regulation 18, or leaving children by such wife or woman, the pension for the class next below that granted the said member shall be given said wife or woman, and the allowance on behalf of any child or children shall be continued subject to the restrictions as to age as provided by Regulation 19. On the marriage of the wife or woman her pension shall cease, but she shall be entitled then to a gratuity equivalent to one year's pension.

25. Pensions to widows and allowances to children shall take effect from the day following that on which the death of the members of the forces in respect of whom said pension is granted occurred, and a gratuity equivalent to two months' pension, or two months' allowance, shall be paid the first month in addition to the pension.

26. Subject to the approval of the Governor in Council the Commission may make such rules as it deems necessary for carrying out these regulations and the other duties asigned to it.

27. These regulations shall only apply to or in respect of members of the forces serving in the Canadian Expeditionary forces during the present war; and shall be deemed to have come into force on the Fourth day of August, 1914, and shall apply to or in respect of all casualties occurring in the said forces since the said fourth of August.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

H.Q. 1064-7-3.

AT THE GOVERNMENT HOUSE AT OTTAWA,
SATURDAY, the 3rd day of June, 1916.

PRESENT:

HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

His Royal Highness the Governor General in Council, under all powers and authorities enabling him, is pleased to enact and make and doth hereby enact and make the Regulations in the Schedule herewith respecting pensions to be granted to officers and men disabled or partially disabled while serving in the military and naval forces of Canada; or the dependants of such officers and men should they be killed on active service, which regulations were contained in the report of the Special Committee of the House of Commons appointed at the recent session of Parliament to consider the question of what pensions should be granted to officers and men of the military and naval forces of Canada.

His Royal Highness the Governor General in Council is further pleased to order that this Order in Council be substituted for Order in Council, P.C. 289, of the 29th April, 1915.

RODOLPHE DOUDREAU,
Clerk of the Privy Council.

The Honourable,
The Minister of Militia and Defence.

P.C. 1567.

H.Q. 1064-7-3.

INSANE SOLDIERS.

AT THE GOVERNMENT HOUSE AT OTTAWA,

THURSDAY, the 13th day of July, 1916.

PRESENT:

THE DEPUTY OF HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

Whereas under the new Pension Regulations permanent insanity is treated as a total disability, a lunatic soldier being entitled to a pension of $480 a year or such larger sum as his rank entitled him to, but no provision is made with respect to the manner in which the pension is to be paid:—

Therefore the Deputy of the Governor General in Council is pleased to make the following additional regulation and the same is hereby made and established accordingly, viz:—

28. Where a pension is awarded to a member of the forces in consequence of his insanity, if the pensioner is in an asylum or other institution the cost of his maintenance therein shall be paid to the Superintendent or other proper officer of the asylum or other institution and the balance of such pension shall be paid to such dependant relative or relatives of the pensioner as the commissioners may direct, and if there is no dependant relative, such balance shall be retained until the pensioner's recovery or his death. If a pensioner is not in an asylum or other institution but remains in the care of the family, the whole of his pension may be paid to such member of his family as the commissioners may direct, or part of the pension may be paid to such member of his family and the balance retained until the pensioner's recovery or death. Provided, however, that if a guardian of the pensioner has been appointed by any court of competent jurisdiction the pensioners may direct that the pension be paid to such guardian.

RODOLPHE DOUDREAU,

Clerk of the Privy Council.

P.C. 1679.

AT THE GOVERNMENT HOUSE AT OTTAWA,

THURSDAY, the 15th day of July, 1916.

PRESENT:

THE DEPUTY OF HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

The Deputy of the Governor General in Council is pleased to order and it is hereby ordered as follows:—

Clause 12 of the new Schedule of Pensions which formed part of the Order in Council, dated 3rd June, 1916 (P.C. 1334), is amended by providing the Sergeants in the Canadian Overseas Expeditionary Forces shall be granted the same rate of Pension as that therein authorized for Squadron, Battery or Company Sergeant-Major, viz., $510 per annum.

RODOLPHE BOUDREAU,

Clerk of the Privy Council.

The Board of Pension Commissioners
for Canada.

P.C. 2080.

CERTIFIED COPY of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 1st September, 1916.

The Committee of the Privy Council, on the recommendation of the Right Honourable the Prime Minister, advise, with reference to the Pension Regulations, sanctioned by the Order in Council of the 3rd June, 1916, as amended by the Order in Council of the 16th June, 1916, that John K. L. Ross, Esquire, of the City of Montreal, Colonel Robert H. Labatt, of the City of Hamilton, and Major John L. Todd, of the City of Ottawa, be appointed the Pension Commissioners to constitute the Commission provided for by the said regulations, and that the said John K. L. Ross shall be the Chairman.

The committee, on the recommendation, further advise that a commission under the Great Seal shall issue to each of the said commissioners appointing him a member of the commission, provided, however, that the appointments herein recommended shall have effect only on, from and after the 11th day of September, 1916.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

The Board of Pension Commissioners.

P.C. 2270.

AT THE GOVERNMENT HOUSE AT OTTAWA,
SATURDAY, the 23rd day of September, 1916.

PRESENT:

HIS ROYAL HIGHNESS THE GOVERNOR GENERAL IN COUNCIL.

His Royal Highness the Governor General in Council is pleased to order and it is hereby ordered as follows:—

The pension Regulations enacted and made by Order in Council dated the 3rd June, 1916 (P.C. 1334), are amended by adding thereto the following regulations which are hereby made and enacted:—

30. In any case of matter in which the commission desires the approval of, or to report to, the Governor in Council, such report shall be made through the Minister of Finance.

31. The commission shall, at the end of each month, submit to the Minister of Finance a report in writing of their proceedings and of the pensions, gratuities, allowances and other grants made by the said commission during each month, and such reports shall be laid before Parliament by the Minister of Finance.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

The Honourable the Minister of Militia and Defence.

SESSIONAL PAPER No. 168

P.C. 2442.

At the Government House at Ottawa,
Wednesday, the 11th day of October, 1916.

PRESENT:

His Royal Highness the Governor General in Council.

His Royal Highness the Governor General in Council is pleased to order that Order in Council P.C. 1334, dated 3rd June, 1916, establishing rates of pensions for the Military and Naval Forces of Canada, shall be and the same is hereby amended so as to cancel Order in Council P.C. 1712 of the 21st July, 1915, establishing Naval rates of pensions.

His Royal Highness in Council is further pleased to order that the following paragraphs in the Schedule Pension Regulations attached to Order in Council P.C. 1334 shall be and the same are hereby amended to read as follows:—

12. The following shall be the scale of pensions for total disability:—

	Yearly.
All ratings below Petty Officer (Naval)	$ 480 00
Rank and file (Militia)	480 00
Chief Petty Officer and Petty Officer (Naval) Squad, Battery or Company Sergt.-Major (Militia) " " " Quartermaster Sergeant (Militia) Colour-Sergeant (Militia) Staff-Sergeant Sergeants (Militia)	510 00

The Board of Pension Commissioners for Canada.

Naval Cadet and Midshipman (Naval) Regimental Sergt.-Major not W.O. (Militia) Master Gunner not W.O. (Militia) Regimental Quartermaster Sergeant (Militia)	620 00
Warrant Officer (Naval and Militia)	680 00
Sub-Lieutenant (Naval)	720 00
Lieutenant (Militia)	720 00
Lieutenant (Naval)	1,000 00
Captain (Militia)	1,000 00
Lieutenant-Commander (Naval)	1,260 00
Major (Militia)	1,260 00
Commander (Naval)	1,560 00
Lieutenant-Colonel (Militia)	1,560 00
Captain (Naval)	1,890
Colonel (Militia)	1,890
Commodore (Naval)	2,700 00
Brigadier-General (Militia)	2,700 00
Flag Officers specially considered.	

14. To those, up to and including the rank of Sub-Lieutenant (Naval) or Lieutenant (Militia), who are totally disabled and in addition are totally helpless so far as attendance to their physical wants is concerned, a further allowance may be made of an amount not exceeding $250 a year, but such special allowance shall be subject to annual review.

15. Those up to and including the rank of Sub-Lieutenant (Naval) and Lieutenant (Militia), who are disabled and are entitled to a pension in the 1st, 2nd or 3rd class shall be paid, in addition to the personal pension, a special allowance of $6 a month for each child; of the rank of Lieutenant (Naval) and Captain (Militia) $7 a month for each child; of the rank of Lieutenant-Commander (Naval) and Major (Militia) $8 a month for each child; of the rank of Commander, Captain, or Commodore (Naval) and Lieut.-Colonel, Colonel or Brigadier-General (Militia), $10 a month for each child. Child shall include a step-child and also a child in

respect of whom the pensioner was in *loco parentis* but in either case only if the relation had been established before the pensioner's disability arose.

27. These regulations shall only apply to or in respect of members of the Naval Forces of Canada and of the forces serving in the Canadian Expeditionary Forces during the present war; and shall be deemed to have come into force on the fourth day of August, 1914, and shall apply to or in respect of all casualties occurring in the said forces since the said fourth day of August.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 2489.

AT THE GOVERNMENT HOUSE AT OTTAWA,
THURSDAY, the 12th day of October, 1916.

PRESENT:

HIS EXCELLENCY THE DEPUTY GOVERNOR GENERAL IN COUNCIL.

Whereas by Order in Council P.C. 289 of 29th April, 1915, Pensions and Gratuities and the scale thereof, were authorized and established for officers and men of the Militia and their dependants:—

And whereas by Order in Council P.C. 887 of 29th April, 1915, the scale of Pensions thus authorized for Militia Officers and men and their dependants was made applicable to the officers, non-commissioned officers and soldiers of the Canadian Overseas Expeditionary Force and their dependants;

And whereas by Order in Council P.C. 1334 of 3rd June, 1916, new Pension Regulations were made for the officers and men of the Canadian Overseas Expeditionary Force, and the last-mentioned Order in Council, through apparent inadvertence, was substituted for and cancelled Order in Council P.C. 289 of 29th April, 1915, which related to officers and men of the Active Militia, instead of substituting it for and cancelling, as was intended, Order in Council P.C. 887 of 29th April, 1915, which relates solely to the Canadian Overseas Expeditionary Force;

And whereas there is now no provision for granting pensions and gratuities to officers and men of the Canadian Militia.

Therefore His Excellency the Deputy Governor General in Council is pleased to order as follows:—

The Order in Council of 3rd June, 1916 (P.C. 1334), is hereby amended by striking out therefrom the letters and figures "P.C. 289" and substituting therefor the letters and figures "P.C. 887".

The Order in Council of the 29th April, 1915 (P.C. 289), is hereby re-enacted, subject to the provision that the regulations made thereunder shall not extend to or apply to persons serving in the Canadian Expeditionary Forces during the present war.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

SESSIONAL PAPER No. 168

P.C. 277.

CERTIFIED COPY of a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on the 30th January, 1917.

The Committee of the Privy Council have had before them a report, dated 24th January, 1917, from the Minister of Militia and Defence, stating that the terms of a proposal made by the British Government regarding pensions of officers or their dependents are as follows:—

> In case of those who have been lent for service in the field, each Government shall undertake full pension liability for its own officers; that is to say in respect of the service of Canadian officers loaned to the British Forces or British officers loaned to the Canadian Forces in the field, such service shall be treated so far as pensions are concerned as if it had been with the officer's own home forces.

The Minister submits that such proposal has been referred to the Canadian Board of Pension Commissioners which is in favour of its adoption.

A similar proposal was made by the Commonwealth of Australia in respect of the exchange of officers between their forces and the Imperial forces and has been adopted by both Governments.

The Minister, therefore, recommends that the Order in Council of 13th October, 1916, providing "that Canada should bear her proportionate share of the service pension or widows' pension at the ordinary rate and in addition the excess of war over peace charges" be cancelled and that the later proposal of the British Government that each Government should pay pensions of its own officers, irrespective of their service with the other, be adopted instead.

The Committee concur in the foregoing recommendation and submit the same for approval.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 508.

AT THE GOVERNMENT HOUSE AT OTTAWA,
SATURDAY, the 24th day of February, 1917.

PRESENT:

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

His Excellency the Governor General in Council is pleased to order and it is hereby ordered that the last paragraph (4) of Order in Council P.C. 2890 passed on the 6th day of January, 1916, which reads:—

> "In cases where an Officer, non-commissioned Officer or man is reported 'missing' Assigned Pay to continue to be paid for a period not exceeding three months, and Separation Allowance for a period not exceeding six months from the date the Officer, Non-commissioned Officer or man was reported 'missing.' Pension to start from the date the assigned pay and allowances cease. For example—a man is reported missing on the 1st October, 1915, both Assigned Pay and Separation Allowance would continue to be paid until 31st December, 1915, and Separation Allowance only up to 31st January, 1916. Then when there has been official acceptance of the death, pension would start from 1st January, 1916."

be cancelled.

His Excellency the Governor General in Council is further pleased to make the following regulations governing the Issue of Pay, Allowances and Pension to or in respect of Officers, Non-Commissioned Officers and men invalided, killed in action, dying on Active service, or reported "missing", to be put into force forthwith, and cancelling all previous regulations on the subject in conflict therewith, and the same are hereby made and established accordingly:—

1. Soldiers invalided.—

(*a*) All invalided soldiers shall receive pay and allowances until discharged from the Canadian Expeditionary Force.

(*b*) No invalided soldier shall be discharged from the Canadian Expeditionary Force until a Board of Medical Officers has certified that further treatment or hospital care will not improve his condition, or that it is advisable that he should pass under his own control.

(*c*) When a Board of Medical Officers has recommended discharge on account of physical unfitness, discharge shall not be carried out until a notification has been received from the Board of Pension Commissioners by the Officer Commanding the soldier, that a pension of an amount stated, commencing on a day fixed, will be forwarded to an address named. The said officer commanding shall, thereupon, complete the discharge as from the day immediately preceding the day fixed. If no pension is to be awarded, the Board of Pension Commissioners shall notify the said officer commanding and discharge, post-dated fifteen days, shall be carried out immediately, provided that the Officer Commanding the Discharge Depot at Quebec, St. John or Halifax may carry out discharge of a man returned from overseas when a Board of Medical Officers has certified that no pensionable disability exists, in which case discharge shall be post-dated fifteen days.

(*d*) When a soldier who has served as a member of the Canadian Expeditionary Force and has been discharged subsequently requires treatment for a disability which is certified by a Board of Medical Officers to have been caused or aggravated by service, the Board of Medical Officers may recommend his reattestation as a member of the Canadian Expeditionary Force. If such recommendation is acted upon he shall be placed on pay and allowances from the date of his reattestation, his pension, if any, being cancelled from such date. Payment of pension covering a period subsequent to the date of reattestation shall be deducted from his pay and allowances and shall be repaid to the Board of Pension Commissioners by the authority making such deduction. The officer commanding the unit in which a pensioner is reattested shall immediately notify the Board of Pension Commissioners of the date of his reattestation. When a pensioner has been reattested he shall be regarded as a new case in so far as discharge and pension are concerned and the usual procedure followed.

(*e*) The regulation under which a man discharged for pension is given thirty days' pay and allowances in advance is hereby cancelled.

2. Soldiers killed in action. Dying on active service or reported "missing."

(*a*) *Without Dependants.*—All pay and allowances shall stop from the date of death or from the date upon which the soldier was in fact "missing."

(*b*) *With Dependants.*—All pay and allowances, except assigned pay and separation allowance, shall stop from the date of death or from the date upon which the soldier was in fact "missing," but assigned pay and separation allowance shall be paid monthly thereafter to the dependant until such time as the pension is ready for issue. The Board of Pension Commissioners shall notify the Separation Allowance and Assigned Pay Branch of the Militia Department that a pension of an amount stated, commencing on a day fixed, will be forwarded to an address named, and Assigned Pay and Separation Allowance shall cease on the day immediately preceding the day

fixed. If no pension is to be awarded the Board of Pension Commissioners shall notify the said Separation Allowance and Assigned Pay Branch and Assigned Pay and Separation Allowance shall be immediately discontinued. If it is made to appear that the proofs necessary to lead to the granting of a pension are being unreasonably delayed, the Board of Pension Commissioners may direct that Assigned Pay and Separation Allowance shall stop.

For the purpose of ascertaining whether Assigned Pay and Separation Allowance are to be discontinued or continued after the date of the casualty, the word "dependants" shall be taken to mean those in receipt of Separation Allowance.

Pensions which may be awarded to persons respecting whom Assigned Pay or Separation Allowance has been stopped after the date of the casualty, or to whom no Assigned Pay or Separation Allowance has been paid, shall take effect from the date upon which the death occurred or from the date assumed to be the date of death for official purposes in the case of those reported "missing."

In the event of a casualty with respect of a soldier without dependants not being reported in time to stop the Assigned Pay cheque for the then current month being issued any overpayment shall be recovered whenever possible, and so also with regard to the personal pay and allowances of officers which are deposited at their credit at the Bank of Montreal, London, England.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 573.

AT THE GOVERNMENT HOUSE AT OTTAWA,
MONDAY, the 5th day of March, 1917.

PRESENT:

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

Whereas the Board of Pension Commissioners has organized a department called the Investigation Department for the purpose of visiting all pensioners once a year and for the purpose of investigating and reporting upon claims and statements made by applicants for pension or by pensioners;

And whereas it is considered desirable to empower visitors of this Investigation Department to administer an oath and to take evidence on affidavit;

Therefore His Excellency the Governor General in Council, pursuant to the War Measures Act, is pleased to order and it is hereby ordered as follows:—

The Pension regulations enacted and made by the Order in Council of the 3rd June, 1916 (P.C. 1334) are amended by adding thereto the following regulation which is hereby made and enacted:—

32. The Commission shall have authority and jurisdiction to appoint a person or persons to hear and receive evidence with respect of all matters pertaining to military or naval pensions and such person or persons shall have power during such appointment to administer an oath and to hear and receive evidence upon affidavit in any part of Canada.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 843.

At the Government House at Ottawa,
Thursday, the 29th day of March, 1917.

PRESENT:

His Excellency the Governor General in Council.

His Excellency the Governor General in Council is pleased to order that Order in Council of the 24th February, 1917 (P.C. 508), shall be and the same is hereby amended as follows:—

That wherever the words "soldiers" or "men" appear therein, the following words be inserted in substitution therefor: "Officers, Nursing Sisters, Non-commissioned Officers or men."

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

The Board of Pension Commissioners for Canada.

BOARD OF PENSION COMMISSIONERS FOR CANADA.

PENSION REGULATIONS.

As amended to February 28, 1917.

1. There has been a Commission to be known as the Board of Pension Commissioners for Canada, consisting of three members appointed by the Governor in Council (hereinafter called the Commission). Each Commissioner shall hold office during good behaviour for a period of ten years from the date of his appointment, but may be removed at any time by the Governor in Council, for cause, and a Commissioner, on the expiration of his term of office, shall be eligible for reappointment. The Commissioners may, from time to time, elect one of their members to be chairman of the Commission.

2. Subject to the regulations hereinafter set out, the Commission shall have exclusive jurisdiction and authority to consider and make all grants and payments of military and naval pension, and of gratuities, allowances and assistance to persons wounded, injured or incapacitated in the military or naval service of Canada (hereinafter called members of the forces), or to their dependant relatives, and shall have exclusive jurisdiction and authority to deal with all matters pertaining to such pensions, gratuities, allowances and assistance.

3. The Commission shall have authority to engage such clerical and other assistance as they may consider requisite for the transaction of their duties, and at such salaries as may be approved by the Governor in Council.

4. In the administration of their powers by the Commission, great care shall be taken to insure all applications being considered and determined with the utmost despatch.

5. There shall be no appeals from the decisions of the Commission, but every applicant for a pension, gratuity, allowance or assistance may present his or her case either personally or by counsel before the full Commission sitting for the purpose of hearing the complaints of those who may have been dissatisfied with decisions given in the ordinary course of administration.

6. The pension or other grant awarded any member of the forces, or any dependant of such member, shall not be assigned, charged, attached, anticipated or commuted, nor shall any assignment, charge, attachment, anticipation or commutation be recognized in any way by the Commission or any officer or servant of the Crown.

7. All pensions awarded to members of the forces shall be determined by the disability of the applicant without reference to his occupation prior to enlistment.

8. Each case shall be subject to review at the end of a year from the time when the pension is first granted, except in those cases where the disability is obviously permanent, and then there shall be no further review.

9. No deduction shall be made from the amount awarded to any pensioner owing to his having undertaken work or perfected himself in some form of industry.

10. The Commission shall make provision for the vocational training of those who are desirous of taking advantage of it, and for the supplying, from time to time, of artificial limbs and appliances to those who would thereby be benefited.

11. The Commission shall have power to entrust to a reputable person for administration the pension or other grant to any pensioner or beneficiary when the Commission is satisfied that it is being improvidently expended by the pensioner or beneficiary, and the expense of such administration, if any, shall be borne by the Crown.

12. The following shall be the scale of pensions for total disability:—

	Yearly.
All ratings below Petty Officer (Naval)	$ 480 00
Rank and file (Militia)	480 00
Chief Petty Officer and Petty Officer (Naval) Squad, Battery or Company Sergt.-Major (Militia) " " " Quartermaster Sergeant (Militia) Colour-Sergeant (Militia) Staff-Sergeant Sergeants (Militia)	510 00
Naval Cadet and Midshipman (Naval) Regimental Sergt.-Major not W.O. (Militia) Master Gunner not W.O. (Militia) Regimental Quartermaster-Sergeant (Militia)	620 00
Warrant Officer (Naval and Militia)	680 00
Sub.-Lieutenant (Naval)	720 00
Lieutenant (Militia)	720 00
Lieutenant (Naval)	1,000 00
Captain (Militia)	1,000 00
Lieutenant Commander (Naval)	1,260 00
Major (Militia)	1,260 00
Commander (Naval)	1,560 00
Lieutenant-Colonel (Militia)	1,560 00
Captain (Naval)	1,890 00
Colonel (Militia)	1,890 00
Commodore (Naval)	2,700 00
Brigadier-General (Militia)	2,700 00
Flag Officers specially considered.	

13. Those who are entitled to be awarded pensions shall be divided into six classes, and each member of each class shall be awarded a pension in direct proportion to his partial or total disability, as follows:—

Class 1—Total disability, 100 per cent.

For example—Loss of both eyes.
Loss of both hands, or all fingers and thumbs.
Incurable tuberculosis.
Loss of both legs, at or above knee joint.
Insanity.
Permanent extreme leakage of valves of heart.

Class 2—Disability, 80 per cent and less than 100 per cent—pension, 80 per cent of Class 1.

For example—Loss of one hand and one foot.
Loss of both feet.
Disarticulation of leg at hip.

Class 3—Disability, 60 per cent and less than 80 per cent—pension, 60 per cent of Class 1.

For example—Loss of one hand.
Loss of leg at or above knee.
Loss of tongue.
Loss of nose.

Class 4—Disability, 40 per cent and less than 60 per cent.

For example—Loss of one eye.
Loss of one foot.
Total deafness.
Loss of two thumbs.

Class 5—Disability, 20 per cent and less than 40 per cent—pension, 20 per cent of Class 1.

For example—Loss of one thumb.
Anchylosis of elbow, knee, shoulder, wrist or ankle.

Class 6—Disability under 20 per cent, a gratuity not exceeding $100.

For example—Total deafness in one ear.
Partial deafness in both.
Loss of index or other finger.

14. To those up to and including the rank of Sub-Lieutenant (Naval) or Lieutenant (Militia) who are totally disabled and in addition are totally helpless, so far as attending to their physical wants is concerned, a further allowance may be made of an amount not exceeding $250 a year, but such special allowance shall be subject to annual review.

15. Those, up to and including the rank of Sub-Lieutenant (Naval) and Lieutenant (Militia) who are disabled and are entitled to a pension in the 1st, 2nd or 3rd class shall be paid, in addition to the personal pension, a special allowance of $6 a month for each child of the rank of Lieutenant (Naval) and Captain (Militia), $7 a month for each child; of the rank of Lieutenant-Commander (Naval), and Major (Militia), $8 a month for each child; of the rank of Commander, Captain or Commodore (Naval), and Lieut.-Colonel, Colonel or Brigadier-General (Militia), $10 a month for each child. "Child" shall include a step-child and also a child in respect of whom the pensioner was in *loco parentis* but in either case only if the relation has been established before the pensioner's disability arose.

16. If a member of the forces has been killed, or has died as the result of injuries received, or disease contracted or aggravated while on active service, the widow, until remarriage, shall be entitled to the equivalent of the pension mentioned in Class 2, and also be entitled to draw the allowance for children. On the remarriage of the widow her pension shall cease, but she shall be entitled then to a gratuity of an amount equivalent to one year's pension.

17. If a member of the forces who has been killed, or had died, as the result of injuries received, or disease contracted or aggravated while on active service, was a widower, but leaves a child or children as defined in Regulation 15, said child or children shall receive an allowance of $12 per month each.

18. In the event of an application being made for a pension on behalf of a woman who has, without being married to a member of the forces, lived with him as his wife, or on behalf of the child or children of any such man or woman, the Commission shall be authorized to grant the customary pension and allowance for a wife or for a child or children, on being satisfied that the circumstances were such as to warrant the conclusion that the woman had at the time of enlistment and for a reasonable time previously thereto, publicly been represented as the wife of said member, or if the Commission is satisfied that justice would be done by the recognition of such woman, for the purpose of a pension, as the wife of such member. On the marriage of the woman her pension shall cease but she shall be entitled to a gratuity of an amount equivalent to one year's pension.

19. No allowance shall be paid to or in respect of any child, if a boy, over the age of sixteen, or a girl over the age of seventeen, unless owing to mental or physical infirmity the child is incapable of earning a livelihood, in which case the allowance may, if in the discretion of the Commission it seems best, be continued until the child is twenty-one. No allowance shall be paid in respect of a child after the marriage of such child.

20. No pension or allowance shall be paid to a member of the forces or any person dependant upon him when the disability or death in respect of which the claim is made was occasioned by the negligence of such member, unless the Commission otherwise consent.

21. In all cases the claims by members of the forces for pensions must be made within two years of the date of the appearance of the disability in respect of which the claim is made.

22. A widowed mother, step-mother or grandmother, wholly or mainly dependant upon a member of the forces who is killed or dies as the result of injuries received or disease contracted or aggravated while on active service, if such member was without dependant children and unmarried, or a widower, shall be entitled to a pension of Class 3, provided, however, that no such woman shall be entitled to more than one pension. On the marriage of the woman such pension shall cease, but she shall be entitled then to a gratuity of an amount equivalent to one year's pension.

23. A father, wholly or mainly dependant upon a son who is a member of the forces and who is killed or dies as the result of injuries received or disease contracted or aggravated while on active service, if such member was without dependant children and unmarried, or a widower, shall be entitled to a pension of Class 3.

24. If a member of the forces to whom a pension has been granted in either Class 1 or in Class 2 dies, leaving a wife to whom he was married at the time of his incurring the disability in respect of which his pension was granted, or a woman occupying at said time the position of a wife within the purview of Regulation 18, or leaving children by such wife or woman, the pension for the class next below that granted the said member shall be given said wife or woman, and the allowance on behalf of any child or children shall be continued subject to the restrictions as to age as provided by Regulation 19.

On the marriage of the wife or woman her pension shall cease, but she shall be entitled then to a gratuity equivalent to one year's pension.

25. Pensions to widows and allowances to children shall take effect from the day following that on which the death of the member of the forces in respect of whom said pension is granted occurred, and a gratuity equivalent to two months' pension, or two months' allowance, shall be paid the first month in addition to the pension.

26. Subject to the approval of the Governor in Council the Commission may make such rules as it deems necessary for carrying out these regulations and the other duties assigned to it.

27. These Regulations shall only apply to or in respect of members of the Naval Forces of Canada and of the forces serving in the Canadian Expeditionary Forces during the present war; and shall be deemed to have come into force on the fourth day of August, 1914, and shall apply to or in respect of all casualties occurring in the said forces since the said fourth day of August.

28. Where a pension is awarded to a member of the forces in consequence of his insanity, if the pensioner is in an asylum or other institution the cost of his maintenance therein shall be paid to the Superintendent or other proper officer of the asylum or other institution and the balance of such pension shall be paid to such dependant relative or relatives of the pensioner as the Commissioners may direct, and if there is no dependant relative, such balance shall be retained until the pensioner's recovery or

his death. If a pensioner is not in an asylum or other institution but remains in the care of the family, the whole of his pension may be paid to such member of his family as the Commissioners may direct, or part of the pension may be paid to such member of his family and the balance retained until the pensioner's recovery or death. Provided, however, that if a guardian of the pensioner has been appointed by any court of competent jurisdiction the pensioners may direct that the pension be paid to such guardian.

29. No section.

30. In any case or matter in which the Commission desires the approval of, or to report to, the Governor in Council, such report shall be made through the Minister of Finance.

31. The Commission shall, at the end of each month, submit to the Minister of Finance a report in writing of their proceedings and of the pensions, gratuities, allowances and other grants made by the said Commission during such month, and such reports shall be laid before Parliament by the Minister of Finance.

P.C. 277—January 30, 1917.

In case of those who have been lent for service in the field, each Government shall undertake full pension liability for its own officers; that is to say in respect of the service of Canadian Officers loaned to the British Forces or British Officers loaned to the Canadian Forces in the field such service shall be treated so far as pensions are concerned as if it had been with the officer's own home forces.

P.C. 508—February 24, 1917.

His Excellency the Governor General in Council is further pleased to make the following regulations governing the Issue of Pay, Allowances and Pension to or in respect of Officers, Non-Commissioned Officers and Men invalided, killed in action, dying on Active Service or reported "missing," to be put into force forthwith, and cancelling all previous regulations on the subject in conflict therewith, and the same are hereby made and established accordingly:—

1. Soldiers Invalided,—

(*a*) All invalided soldiers shall receive pay and allowances until discharged from the Canadian Expeditionary Force.

(*b*) No invalided soldier shall be discharged from the Canadian Expeditionary Force until a board of Medical Officers has certified that further treatment or hospital care will not improve his condition, or that it is advisable that he should pass under his own control.

(*c*) When a Board of Medical Officers has recommended discharge on account of physical unfitness, discharge shall not be carried out until a notification has been received from the Board of Pension Commissioners by the Officer Commanding the soldier, that a pension of an amount stated, commencing on a day fixed, will be forwarded to an address named. The said Officer Commanding shall, thereupon, complete the discharge as from the day immediately preceding the day fixed. If no pension is to be awarded, the Board of Pension Commissioners shall notify the said Officer Commanding and discharge, post-dated, fifteen days, shall be carried out immediately. Provided that the officer commanding the Discharge Depot at Quebec, St. John or Halifax may carry out discharge of a man returned from overseas when a Board of Medical Officers has certified that no pensionable disability exists, in which case discharge shall be post-dated fifteen days.

(*d*) When a soldier who has served as a member of the Canadian Expeditionary Force and has been discharged subsequently requires treatment for a disability which is certified by a Board of Medical Officers to have been caused or aggravated by service, the Board of Medical Officers may recommend his reattestation as a member of the Canadian Expeditionary Force. If such recommendation is acted upon he shall be placed on pay and allowances from the date of his reattestation, his pension, if any, being cancelled from such date. Payment of pension covering a period subsequent to the date of reattestation shall be deducted from his pay and allowances and shall be repaid to the Board of Pension Commissioners by the authority making such deduction. The Officer Commanding the unit in which a pensioner is reattested shall immediately notify the Board of Pension Commissioners of the date of his reattestation. When a pensioner has been reattested he shall be regarded as a new case in so far as discharge and pension are concerned, and the usual procedure followed.

(*e*) The regulation under which a man discharged for pension is given thirty days' pay and allowances in advance is hereby cancelled.

2. Soldiers Killed in action.

Dying on Active Service or Reported "Missing."

(*a*) *Without Dependants.*—All Pay and Allowances shall stop from the date of death or from the date upon which the soldier was in fact "missing".

(*b*) *With Dependants.*—All pay and allowances, except Assigned Pay and Separation Allowances, shall stop from the date of death or from the date upon which the soldier was in fact "missing" but Assigned Pay and Separation Allowance shall be paid monthly thereafter to the dependant until such time as the pension is ready for issue. The Board of Pension Commissioners shall notify the Separation Allowance and Assigned Pay Branch of the Militia Department that a pension of an amount stated, commencing on a day fixed, will be forwarded to an address named, and Assigned Pay and Separation Allowance shall cease on the day immediately preceding the day fixed. If no pension is to be awarded the Board of Pension Commissioners shall notify the said Separation Allowance and Assigned Pay Branch and Assigned Pay and Separation Allowance shall be immediately discontinued. If it is made to appear that the proofs necessary to lead to the granting of a pension are being unreasonably delayed, the Board of Pension Commissioners may direct that Assigned Pay and Separation Allowance shall stop.

For the purpose of ascertaining whether Assigned Pay and Separation Allowance are to be discontinued or continued after the date of casualty, the word "dependants" shall be taken to mean those in receipt of Separation Allowance.

Pensions which may be awarded to persons respecting whom Assigned Pay or Separation Allowance has been stopped after the date of casualty, or to whom no assigned pay or Separation Allowance has been paid, shall take effect from the date upon which the death occurred or from the date assumed to be the date of death for official purposes in the case of those reported "missing".

In the event of a casualty with respect of a soldier without dependants not being reported in time to stop the Assigned Pay cheque for the then current month being issued, and overpayment shall be recovered whenever possible, and so also with regard to the personal pay and allowances of officers which are deposited at their credit at the Bank of Montreal, London, England.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

GENERAL REPORT

ACTING COMMISSIONER W. F. O'CONNOR, K.C.

RE

COST OF LIVING

SUGAR

PRINTED BY ORDER OF PARLIAMENT.

OTTAWA
PRINTED BY J. DE L. TACHÉ,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1917

[No. 189—1917.]

GENERAL REPORT OF W. F. O'CONNOR, K.C., ACTING COMMISSIONER RE COST OF LIVING.

Ottawa, May 18, 1917.

To Hon. T. W. Crothers,
Minister of Labour,
Ottawa.

I am now ready to commence delivery to you, at weekly stages, reports concerning the commodities which at your request I have been investigating. One of such reports, concerning the production, cost, selling prices, and distribution system of refined sugar, I have already completed, and I deliver it herewith. Others are rapidly approaching completion and will be delivered at short intervals. My report on anthracite coal is about ready; also that upon my investigation into cold storage commodities. The last mentioned investigation was an ambitious effort, undertaken by a small, and at the beginning comparatively uninformed staff, but in the result reasonably complete and satisfactory returns were obtained from every known cold storage establishment in Canada. The information which the cold storage report will convey will be found, as I venture to submit, of very great value. It will cover such commodities as butter, eggs, cheese, beef, pork, bacon, ham, mutton, lamb, and six varieties of fish. Investigations into the canning business, the flour-milling business, the ice business, and into the production and marketing of bread, potatoes, and other food products, are proceeding. Other investigations covering salt, textiles, knit goods, silk, raisins, sauces, vinegars, yeast, fancy cheeses, starch, syrups, and condensed milks are, some extensively, others but slightly advanced. As I report from time to time I shall recommend any action considered by me to be desirable.

The system of investigation pursued, where possible, has been to secure information as to quantities on hand, cost and selling price of particular commodities as of a special date (which in most cases has been made January the first of this year) to obtain for purposes of comparison, similar particulars for three previous years, and to require monthly reports with similar information thereafter. For the cold storage business this system has been completely established. In other lines, requiring, to cover the whole field, communication monthly with a very large number of dealers, unless the present staff were very largely augmented, the complete installation and operation of such system would be impossible, so it is operated upon a selected list of dealers for the purpose of tracing and recording costs and prices only. But as fully applied to cold storage products it goes much further and has a value apart from the matter of costs and prices. It enables a monthly stock taking of the bulk of the meat, fresh fish and dairy products of the country. By means of a simply devised card system and tabulations it enables the quick discovery of not only how much of a given commodity is in cold storage within Canada on the first of any month, but also just where it is held, its cost and value. Comparisons with conditions of previous years are available as a check upon undue accumulation. I have noted some recent expressions of doubt as to the value of the investigations made and being made, with direct relation to their effect in reducing the cost of commodities. It is asked "How much have they reduced the cost of eggs or butter or flour?" The answer, *ex necessitate*, is "one cannot tell." Neither can one establish the proportion of lives saved by the observance of health regulations, or of the crimes which would have been committed were it not for fear of the police. Men die. Crimes are committed. But nobody ever asks

"What's the use?" The most cursory perusal of the Order in Council under which the investigations referred to are being made will enable the discovery that it has only two aims:—

1. The prevention of any undue and unnecessary accumulation and withholding from sale in face of a fair price obtainable;
2. The prevention of combining in restraint of competition, or for the enhancement of prices.

These forbidden things are of a common *genus*. They constitute interference with the ordinary operations of the familiar "law of supply and demand." Whether, since when the Order in Council was made, the entry of the United States into the war as an ally—and the consequent constitution of almost all of the North American continent into one great zone whose food, fuel and clothing problem, mainly the same, need, in the event of international action, no longer remain subject to the existence of an adjacent international boundary line beyond which mere national laws have no effect and across which as an answer to action by way of embargo might have come reprisal—makes any difference, is not a matter with which I need deal nor express any opinion, unasked.

The Order in Council has been operated according to its terms, as they were found written. I have sought for evidence of undue accumulation and warned against it. I have carefully traced out costs and prices. I have many times insisted upon the right of proper buyers to buy at a fair price. I have searched for evidence of trade combines, located many, and caused them to dissolve. I shall not attempt to report to you as respects all these matters. They have constituted part of the days work and you are as familiar as I with most if not with all of them. You will be aware that at times we have been able in specific instances to prevent rises in price. But you will agree, I am sure, that the best success attained under the regulations has been by way of restraining and informing. The knowledge that costs and prices were undergoing constant supervision has, I am sure, done much to restrain undue inflation of prices. The information as to the cost to wholesalers and retailers, from time to time conveyed to inquirers who otherwise would have remained subject to the impression that advantage was being taken of the necessities of the poor, has resulted in a better understanding between the consumer and the dealer, both of whom, in fact, seem to be in most cases in almost the same box. I cannot too earnestly impress upon you, as I would like to impress upon all concerned, that notwithstanding any impression anywhere or by anybody held to the contrary effect, the manufacturing and trading classes of Canada, so far as my investigations have extended (and they have been wide and deep), seem, with very rare exceptions, to have resisted the temptations and withstood the strain of the times through which we are passing in a most commendable manner. In the investigation of some lines, notwithstanding greatly enhanced selling prices, I found that dealers were making less profit than when they had been selling the same lines for about half the present prices. In others I found to dealers in loyal performance of contracts made before advances in cost, selling consumers away below cost. Rarely only have I heard, even, of cases meet for criticism or complaint. I know that this isn't the popular conception of the situation. It isn't in fact the conception with which I began investigating. I know that what I am now writing is not the most popular thing that I could write. But I know my facts and have the proofs. This makes quite a difference when one's endeavour is to be fair. In the various reports that I shall place in your hands you will find these proofs, labouriously gleaned from many quarters. They are not based upon the word or oath of those investigated, merely. I have tapped many outside sources. I have had tireless assistance from a small but exceedingly competent staff.

I wish that I could as highly compliment the manufacturing and trading classes of Canada upon their accounting systems and business methods, as I can upon their

generally fair conduct so far as taking of profits is concerned, but I cannot do so. I have experienced the greatest of difficulty in securing from most of them data which their own best interests would dictate that they should have always immediately available. Very many manufacturers and merchants have no precise idea as to what their products or wares cost, and so they find it impossible to work out their precise profits. As to price fixing, some seem to sell for what they can get. They do not know their costs. Others make their prices the same as those of their competitors. Frequently I have noted that returns made showed profits in excess of real earnings. Essential elements entering into costs had been left out of calculation. Such manufacturers and merchants are simply "fooling themselves." Far too many of them charge themselves with nothing, or with too little, for depreciation. Others have no costs accounting system at all. Some are manufacturing or selling some lines which pay and other lines which do not pay, the losses due to the latter operating as a drag on the profits earned on the former. If they knew the facts they might drop the unprofitable lines. In the next block, maybe, is a struggling manufacturer or dealer who, if he could add to his trade the lines being manufactured or dealt in at a loss by the first-mentioned manufacturer, could coin money. The installation of a proper costs system by the first-mentioned manufacturer would save, perhaps, both concerns. Its absence may mean in the course of time two bankruptcies. What has this to do with the cost of living? Much. Every business loss must be met, and the consumer pays. John Jones, the shoe manufacturer, fails. Smith, the tanner, loses $1,000, and Anderson, the machinist, a like sum. These losses are part of the operating expenses of Smith's and Anderson's businesses. Every sensible manufacturer or merchant calculates as part of his operating expenses an amount based upon experience, to cover his losses by bad debts. He calculates his profits *in addition* to his operating expenses. The consumer pays, as part of the purchase price of every article he buys at ordinary prices, these operating expenses and profits as well. It is, therefore, to his interest that business be stabelized as much as possible, that it be well conducted, that bankruptcies be avoided. He is the one who pays. He may purchase a watch worth $20 for $10 on January 1 at a bankrupt sale, but, during the rest of the year, he will be contributing to somebody his share of the amount necessary to pay full price for not only that watch but for every other article that was sold below the cost of production and marketing within an undiscoverable area of influence. He cannot escape. If he could so could we all. We do not. We pay.

I believe, and a number of those investigated have been so kind as to so say, that these investigations have been of benefit to many through the forcing of them to look into aspects of their businesses to which they had not previously turned their thoughts. The information collected and provided for is capable of being turned greatly to the advantage of manufacturers and business men. The costs data furnished by *particular individuals* ought not under any circumstances be published. It might be taken advantage of by competitors. But the average costs of particular lines, or particular classes of businesses or of particular classes of industries, might be published, or communicated upon request, so that those interested might look into conditions affecting their businesses or industries and, if their costs were running high, be led to detect leaks, or improve methods, or quit. Thus could be placed at the disposal of each the benefit of the accounting skill of all. In any event the matter is indisputable that business men who carry on their enterprises vainly imagining that they are making profits which the services of any expert cost accountant for a few days would show are non-existent because of this cause or of that, are headed straight for the road to bankruptcy. Some businesses do not pay. There are too many in them. Others are being inefficiently conducted. Proper cost accounting systems will disclose real conditions. Every business man should know just where he stands.

I have now traced the course of action taken under you in the operation of the Order in Council covering the cost of living, reported some facts as I have found them, and presumed to venture some advice to business men. I have yet to make

some observations affecting the cost of living generally. I do not believe that any sane and thoughtful person imagined that the making of Order in Council No. 2777 of November 10, 1916, or anything possible to be done under it or under any other law, could obviate any direct consequence of the war, prevent a reduction of any crop, cheapen any ocean freight rate, or replace the lost productivity of many millions of men. It has its function which I have explained. I do not understand it to be an insurance against the high cost of living. I venture to submit that if on August 4, 1914, any one had predicted and been believed that on May 15, 1917, practically the whole world would be at war, with 30,000,000 men or more under arms, and that over 400,000 of these would be Canadians withdrawn from production and being financed and fed by Canada at an expense of over a million dollars per day, and that coincidently there would occur an almost world-wide shortage of crops, that a quotation of presently prevailing prices would not at all surprise. I think that the predominant thought would have been: "Anything, any hardship, any sacrifice, so long as we pull through." So I say that in so far as high prices are really due to war and crop conditions, only hard work and saving, production and avoidance of waste can serve.

I now proceed to a number of recommendations, the results of my experience as acting commissioner. In the first place, if your department is to continue and augment the "stock-taking" system, of which I have written, as a means of assisting in food control during the war, you will have to very largely increase your staff.

Next I feel bound to express to you my doubt as to the wisdom of further continuance of the present investigating powers of municipalities into the cost of living, and to suggest the advisability of repealing these powers and of making it necessary that municipalities which undertake the institution of investigations shall see them through to a finish. Such powers were granted at the request of the municipalities. The result of the grant has been, in almost every instance, an attempt to shelve upon this department irregularly instituted, irregularly conducted, and half concluded inquiries, which in some cases have constituted a mere duplication by way of local investigation of work already done, or in process of being done, by this department, as part of a general investigation. There is a temptation to civic governing bodies to institute such inquiries, carry them along while any eclat is to be derived from the exhibition of a popular activity, and, in case nothing is discovered which justifies the statements or charges which usually precede and accompany municipal investigations, or in case any circumstances develop which necessitate the unpopular proceeding of recommending a definite prosecution, to attempt to unload upon this department, at a time when perhaps it is engaged investigating other and different matters of Dominion-wide importance, all responsibility in the premises. Resort is had to the provision which authorizes "further investigation" by this department, a provision intended mainly for different circumstances, arising when a municipality, by reason of the limitations of its territorial jurisdiction, finds that local conditions have been produced by extra-territorial causes which it cannot inquire into. While I believe that as respects such purely local matters as the price of milk or ice within a municipality can best be, and ought always to be, inquired into by a local body (or else the larger and more important matters of inquiry necessary to be carried on by this department must be submerged and neglected owing to the necessity of attending, at great expense, to a multitude of purely local matters extending over one-sixteenth of the land surface of the globe) I submit that the conditions as related call for some remedy. To descend to the vernacular, there has developed on the part of municipalities considerably too much the art of "passing the buck". I therefore recommend that municipal investigations into the cost of living be instituted hereafter by mayors, wardens, reeves, or other head officers of municipalities and only upon prior application to the Minister of Labour and with his consent, and that once instituted the whole responsibility for such investigations to the end, rest with those who insti-

tute them. I know of no case of a satisfactory municipal investigation, properly instituted and seen through, but I believe that with proper responsibility imposed upon municipal officers and with no opportunity afforded for evasion of that responsibility, satisfactory municipal investigations could be had. I am convinced that the possibility of such investigations would have a restraining influence locally as respects accumulations, prices and local tradesmen's combines. This department cannot be aware of local conditions at all times and at all places. Yet another suggestion. In my judgment the interest and co-operation of the various provincial authorities should be sought. The jurisdiction of the Dominion authorities respecting cost of living has had to be rested upon its power to define what shall constitute a crime. The provisions of the Order in Council under which you act respecting the cost of living are criminal laws. Under our constitution, while the Dominion authority enacts criminal laws, the provincial authorities are charged with the enforcing of them. Laws against accumulations, unjust prices and combines having been provided by Dominion authority, the provincial authorities have seemingly exhibited no interest whatever in the matter, and curiously enough the general public seems to regard the responsibility for the administration of these laws as upon the Dominion. This is certainly not so. The Dominion actively prosecutes, as I understand the law, only where its revenues are affected as under the Customs or Inland Revenue Acts, or its federal interests, as under the Fisheries or Indian Acts. In such cases it has a quasi-personal right, in the nature of that of a private prosecutor who has been personally affected by the commission of a crime. Thus the provincial authorities are primarily responsible for the enforcement of the substantive law provided by the Order in Council respecting the cost of living. The Dominion powers are limited to investigating, which by the way it is best fitted to perform. My suggestion is that there be a getting together and a pulling together, with a clear understanding as to the relative responsibility of the various authorities. All are or ought to be interested in effecting desired results.

Finally let me direct your attention to the accompanying two reports of the Federal Trade Commission of the United States, concerning co-operation in American Export Trade. They express opinions with which my investigations have led me to agree.

In most European countries combinations of producers (manufacturing and other) when devised and operated under more or less complete state supervision, are within the law, and such combinations are common. Some have attained great strength, the benefit of which particularly exhibits itself when these combinations come into conflict in the foreign field with the competition of countries such as Canada and the United States, where trade combinations are not favoured. They usually sell abroad through a common exchange, and they are thus enabled to secure advantages as to price and capacity to fill large orders which could not be secured by isolated, competing enterprises. The strong reasons which undoubtedly exist against permitting such combinations to operate within home markets fail with relation to foreign markets. There we desire to sell as a nation merely a surplus production. And, by the way, under such a system of state supervised combinations to promote export trade, price fixing by the state, if such should become necessary, is made much easier. The foreign price can be fixed as well as the home price. Thus may excessive exporting be temporarily restricted as the occasion requires. The admitted danger of a possible effort on the part of such combinations formed for the purpose of promoting export trade to combine as well concerning home trade would be obviated by the constant presence of state supervision. Their every move, otherwise illegal, must be taken in the presence, so to speak, of the state, and with the state's prior imprimatur. Even in England there is much greater liberty of combination than obtains in Canada. There the coal, cement, pottery and some other extensive interests are combined for export business purposes, through common sales and distribution agencies. If my

recommendation that a Trade and Industrial Board be established, with jurisdiction over trade combines and trade methods, be concurred in, such a board might well direct its attention to the subject matter now being discussed. In my judgment greater selling efficiency will lead to better labour conditions and lower prices. I favour production to the utmost and the forced sale at the best obtainable price of any surplus. Factories operated at half time or three-quarters time are producing inefficiently. Canada's equipment for industrial effort is said to be of a capacity twice or three times greater than its home trade requirements demand. Only by forcing export trade or through the influx of an abnormal immigration of a non-industrial, preferably agricultural, class can extensive "scraping" of plants be avoided. Irregular employment reduces the artisian to the condition of a casual tramp. Fixed residence becomes impossible for him. The high wages so often quoted as his per diem rate sadly peter out when calculated at a per annum rate. Steady employment may enable lower per diem rates, but, whether or not, it would be beneficial alike to employer and employee. As a result of war conditions Canada is now selling all that she can produce. We ought to organize forthwith so that we may sell with efficiency when, after the coming of peace, the buyers now clamouring at our counters may require to be coaxed or informed. The problem of efficient production and efficient marketing of manufactures, which will never, as will our food stuffs, ordinarily, for instance, "sell themselves" is so intimately associated with that of the employment of labour, that your department may well exhibit a special interest therein. It involves the provision of employment, we know not how soon, but we hope very soon, for some hundreds of thousands of Canadians now temporarily absent on a great mission, performing an exalted national service. There will be much owing to our troops when they return. It is true that there will arise an extra demand for manufactured articles incidental to such return, which will in part care for the loss of employment incidental to the practical cessation of munitions production, but such demand will by no means care for all of such loss. There must ensue a temporary disruption of industry unless we anticipate and are ready to forestall. Merely to produce is well. But what is produced must be sold. If in discussing such matters as this it should be considered that I have wandered from my proper text "Costs and Prices," I shall not be able to agree. I consider that by increasing production, thus reducing the cost of production, and efficiently selling, thus reducing the cost of selling, not only the manufacturer but also the consumer gains. Prices depend upon costs. Lower costs enable lower prices. And, in this same connection, having in mind the demand for the establishment of a Board or Commission to deal with the legal and other aspects of inland trade, my humble suggestion is that such a board is as much necessary for the purposes of foreign trade. It would be dangerous to permit the formation of trade combinations such as I have described except under state supervision. Such supervision could best be provided by such a board.

All of which, with the accompanying report concerning sugar, is respectfully submitted.

W. F. O'CONNOR,
Acting Commissioner re Cost of Living.

SUGAR.

To Hon T. W. Crothers,
Minister of Labour,
Ottawa.

Ottawa, May 18, 1917.

I now respectfully report concerning my recent investigation into the cost and selling prices of sugar. Such investigation covered all the Canadian refineries of both cane and beet sugar and as well as several hundred wholesale dealers, in all the provinces, as to production, costs, sale prices and method of distribution. While I have discovered no case of overcharging whatsoever, I have to report that, in my opinion, the prevailing system of sale and distribution is technically illegal because based upon periodically fixed resale prices by way of common agreement. Yet I consider such prevailing system to be, under the applicable hereinafter disclosed circumstances, fair and beneficial to the public. In view of the matters stated I am making recommendations for the amelioration of existing laws. I provide ample proofs throughout for all statement of fact and give reasons for all contentions and recommendations.

GENERAL STATISTICS AND THE BEET SUGAR INDUSTRY.

The sugar refining industry of Canada is one of very respectable proportions. The sugar refined during the calendar year of 1916 aggregated 345,089 tons and was of the value of $47,473,114. The tonnage of 1915 was 303,233, of 1914 was 332,512, and of 1913 was 319,752. There are six refining companies which operate in all eight refineries. Acadia Sugar Refining Company Ltd., operates at Halifax, N.S., Atlantic Sugar Refineries Limited at St. John, N.B., the Canada Sugar Refining Company Limited and St. Lawrence Sugar Refineries Limited at Montreal, Que., Dominion Sugar Company Limited (three refineries) at Wallaceburg, Kitchener, and Chatham, Ont., and the British Columbia Sugar Refining Company, Limited, at Vancouver, B.C.

All of the named companies excepting the Dominion Sugar Refining Company, Limited, refine imported raw cane sugar exclusively. At Kitchener and Chatham that company manufactures beet sugar, and at Wallaceburg it manufactures both beet and cane sugar. Beet sugar can be produced, ordinarily, at a cheaper rate than cane. The Dominion Sugar Company's main purpose has been the manufacture of the first mentioned product, but, during 1916, of a total production by it of 101,000,000 pounds of refined sugar, only 19,000,000 pounds were from beets. The balance was made out of imported raw cane sugar. Owing to continuously wet weather, the beet crop of 1916 proved practically a failure.

The Dominion Company sells most of its product direct to manufacturers and retailers. As a rule its prices run lower than those of the other refineries by 10 or 15 cents per hundred pounds. The buying public seemingly has not the same confidence in the beet product as in the cane. The Company sells most of its product in moderate quantities to retailers. It numbers only a few wholesalers, comparatively, among its customers. It sells through resident agents and its own commercial travellers. The beet product enjoys the benefit of the maximum customs duty of about $1.37 per 100 pounds, imposed on raw cane sugar, so that it can be and is sold at a substantial profit. There is not any reason known to me why the average cost of its production for the year 1916, which was 5½ cents per pound, should be materially higher during 1917, so that considering the ruling wholesale prices for refined cane sugar (caused in the main by the duty and the greatly enhanced cost of the raw product and the known shortage of the cane crop) the Company, so far as its beet sugar is concerned, is not

only now earning substantial profits, but is in a fair way to continue doing so. Dealing, as it does, with some thousands of retailers direct, it has at all times at precarious risk a very large capital investment. For the same reason its distribution system is, in my judgment, of a more expensive character than that of the other refining companies. Under the circumstances, therefore, I am not prepared to pronounce its present profits upon beet sugar unreasonable, which its profits on cane sugar certainly are not. The company sells its sugar at a price delivered. The cane sugar refiners do likewise, according to an equalized freight system to which I shall refer at length, and, because the prices quoted by the cane sugar refiners fluctuate with the New York price for cane raw, and the prices for refined beet sugar ordinarily maintain a relation to the prices for refined cane sugar, I think it fair to conclude that the Dominion Sugar Company's system of delivering sugar and its charges for delivery (included in the delivery prices quoted) are upon practically the same basis.

The refiners other than the Dominion Company deal mainly with wholesale grocers and manufacturers.

The Cuban crop of raw cane sugar controls the sugar situation in Canada. Some figures of Cuban production follow:—

	Long tons.
1913-14	2,597,732
1914-15	2,592,667
1915-16	3,007,915
1916-17	2,600,000

Following is a statement of the world's sugar crop for equivalent year:—

	Long tons.
1913-14	18,740,212
1914-15	18,468,401
1915-16	16,592,158
1916-17 (estimated)	16,000,000

REFINING COSTS.

It is not easy to arrive at refinery cost of production. None of the refineries keep any separate cost accounts covering individual classes of sugar, but they all average their general manufacturing, selling, and delivery costs upon a 100-pound basis. This makes it possible to obtain a relative idea as to particular costs. It is comparatively useless to attempt to estimate costs as of any particular time or covering any particular week or month, because many causes operate to compel the refiner, at times, for longer or shorter periods, to sell at a loss. Occasionally a loss will be the result of a full year's operations. One refinery operated last year at a very serious loss, and another barely earned the interest on its bonded indebtedness. This latter refinery had averaged a profit of about 4 cents per 100 pounds on its products, or about two-thirds of 1 per cent on its turn-over. A test made this week, based upon replacement value of raw sugar, may show that the refineries are operating at a large per diem loss. A change in sugar values, followed by a test next week, may reverse the conditions and show seemingly undue profit. The only fair course in dealing with an industry such as this is to consider the operations of a whole business year. The refineries are absolutely dominated, as concern prices, by the cost of raw cane sugar. Their prices go up and down with the cost of the raw product as quoted in New York. It is practically impossible to arrive at the true manufacturing cost of particular grades of refined sugar. The best that can be done is to approximate general costs for short periods and to reach an average. All the grades are different results of the same processes. Yellow sugar results at one stage of the processes necessary to produce granulated sugar. Fancy sugars result from carrying the processes of manufacture past those necessary to produce granulated. Some refineries produce over 90 per cent of granulated and over 5 per cent of yellow sugar. Fancy sugar are an almost negligible proportion.

To apportion with exactitude the cost incident to the production of each class of sugar would involve such close consideration of labour hours, steam consumption, filtration cost, evaporation value, etc., for each grade that the value of the result attained would not justify the expense necessary to attain it. Besides, conditions produce remarkable fluctuations in the actual cost of specific products, while general refinery costs remain comparatively uniform. There has been an undoubted increase in the factory costs of producing refined sugar since the beginning of the war. Prominent among these costs have been: (1) the unstable condition of the labour market, (2) the erratic supply of raw sugar and accessory material such as coal, chemicals, packages, etc., (3) the general increase in the cost of raw sugar and accessory materials.

Owing to the necessity for accepting at times less efficient labour than was formerly obtainable a given operation may take longer to complete. Occasionally the necessary labour is not obtainable at all. Under these circumstances factory costs will for a time approach the abnormal. The expense incident to the receiving and instructing of new help and the losses incident to performance by the unskilled as compared with the cost of the smooth-running operations of other times need only be mentioned to be appreciated.

In twenty months, coal such as is used by the refineries has more than doubled in price. If we go back to the ante-bellum period it has increased from $3.25 per gross ton delivered at the boilers of the refinery in 1914, to $8.50, an advance of over 250 per cent. Besides, the presently obtainable coal is of poorer quality for refinery purposes than that formerly obtainable. Sulphuric acid, the most economical for every purpose of a sugar refinery, cannot now be obtained, and hydrochloric acid is being used instead at an advance in cost of over 300 per cent. Bags and packages have advanced in cost in like proportion. These advances in manufacturing costs have been gradual. They have contributed their share to produce higher prices for sugar, but the most potent cause has been the advance in the cost of the raw product. That product has more than doubled in cost since the beginning of the war. It has advanced from $2.25 to $5.30 per 100 pounds or over 140 per cent. Nor must it be forgotten that in August, 1914, the duty on raw cane sugar was increased about 75 cents per 100 pounds, or from 40¾ cents to $1.03¾ for 96° preferential sugar, and from 57½ cents to $1.37¾ for 96° non-preferential sugar. A large proportion of the raw sugar obtainable in 1916 was non-preferential. High freight rates, too, have contributed to enhanced sugar prices. Cuba freights before the war were 9 cents per 100 pounds. They are now 76 cents. War risk costs from 1 per cent to 2 per cent. New York freights run from 13 to 15 cents per 100 pounds.

As I have said, the refineries are dominated always by the raw sugar market. Whether that goes up or down they follow it. When caught with a large stock on hand in case of a drop in sugar values they may experience severe losses which they must recoup out of the general earnings of their business.

A test of the cost of granulated sugar made by an Eastern refinery on February 8, 1917, showed the following costs per 100 pounds:—

Cost of raw sugar, duty, etc., paid	5·81
Overhead and other manufacturing charges	1·0323
Other charges	·4390
Total cost of refined sugar	7·2813
Refinery's average selling price net for refined sugar on the same day	6·81
Operations showing loss of	·4713 or 47·13 cents per 100 pounds on raw.

A test of another refinery made about the same time showed a total cost to the refinery of 7·35. This refinery's average selling price net for refined sugar on the same date was 6·95. The operations of the refinery were thus showing for the time being a loss of 40 cents per 100 pounds.

Another test made near the end of January by yet another refinery showed a cost of 7·59 for granulated and a net average selling price on the same date of 7·79. The cost mentioned was made up as follows:—

Average cost of stock of raw sugar from which granulated was produced	6·1950
Loss converting 100 pounds of raw into 100 pounds refined	·4026
Cost of packages	·2770
Cost of refining, including all overhead charges, etc.	·6200
Cost of delivery	·0250
Depreciation of buildings, plant and machinery	·0750
Total	7·5946

Yet another test made during the progress of the investigation showed the production of granulated sugar at a cost of 7·10 for the time being, when the selling price was averaging 7·25 per 100 pounds. The cost of raw cane sugar, which went to make up the total cost was at the time $4.75 at New York. The balance of cost was made up of freight and insurance to the refinery, duty, manufacturing, selling, etc. Shortly after the test was made the cost of raw sugar fell 75 cents per 100 pounds at New York. The refinery thereupon reduced the price of its refined product, the cost of which at the time of the test showed $7.10. This was the actual cost of the actual granulated sugar, as worked out upon the average cost of the raw product from which it was made. The new selling price fixed by the refinery was $6.50 per 100 pounds. This operation would show an actual loss of 60 cents per 100 pounds for so long as the price of $6.50 was maintained.

Of course the refineries make profits from their purchases of sugar, as occasionally they make losses. For instance, the operation might have been the other way. If in the case just mentioned the raw had advanced 75 cents instead of falling that amount, the refinery would make a substantial profit on granulated. It would unquestionably have advanced its granulated commensurate with the advance in the cost of raw sugar. Profits are made by the refineries on rare occasions in another way. Having agreed to buy a large quantity and having no immediate necessity to manufacture it, if the price advances it may resell its purchase, or a portion thereof, at a profit.

The main elements of cost are: (1) the cost of the raw product and freight thereon, (2) customs duties payable, (3) manufacturing and selling costs of the refined article.

As mentioned, the cost of the raw product is variable, and, from the Canadian standpoint, uncontrollable. Customs duties and manufacturing and selling costs are much less variable. The average cost of raw cane sugar, duty, freight and insurance paid within Canada, for the year 1916, was about $6.07. The manufacturing and selling costs of the various refineries, including the discounts allowed to wholesalers as their remuneration for distributing the product, average about $1.40. During 1916 the average cost to the refiners of production, at the refinery, was for beet sugar 5½ cents per pound, and for cane sugar 6⅝ cents per pound. The average selling prices, net, were respectively 6¾ cents per pound and 7 cents per pound. The average of the "list" prices, which are subject to 30 cents discount to wholesalers, was $7.28 per 100 pounds. From this $7.28 deduct 30 cents for wholesalers' discount and 10 cents for absorbed freight charges to the refineries' vendees (see references to this absorption later on herein under the heading Equalized Rates) and the normal net realization of the refineries of cane sugar is found to have been $6.88 per 100 pounds against a normal cost of about $6.67, or a profit of about 21 cents per 100 pounds, or one-fifth of a cent per pound, or say 2⅔ per cent on the business done. Such profits are surely reasonable. I have included in the computation made only those refineries which earned dividends on their stock during 1916. Two of Canada's six sugar companies did not earn dividends in that year. Now, note this: The average cost of raw cane sugar during 1916 was $6.07. Add to this as cost of manufacture and freight absorp-

tion, $1.10. The average cost of production on a raw sugar replacement cost basis would be $7.17. The net average selling price was $6.98. It follows that the refineries sold at times otherwise than on a replacement cost basis, giving the advantage to the consumer.

A similar condition has obtained very recently, and obtains as I write. Note the following:—

January, 1917—	
Average cost of raw, duty, etc., paid	$5 80
Manufacturing and selling costs, etc.	1 40
	$7 20
Average list price for month for refined sugar	$7 35
February, 1917—	
Average cost of raw, etc.	$5 85
Manufacturing, etc.	1 40
	$7 25
Average list price, etc.	$7 32½
March, 1917—	
Average cost of raw, etc.	$6 30
Manufacturing, etc.	1 40
	$7 70
Average list price, etc.	$7 60
April, 1917—	
Average cost of raw, etc.	$6 85
Manufacturing, etc.	1 40
	$8 25
Average list price, etc.	$8 02½

These averages, of course, are rough guides only, as to amounts of profits or losses. The volume sold at a particular time is the essential consideration so far as profits are concerned. But they indicate at least the cause of the increase in sugar prices. It is the rise in the cost of the raw product.

It can hardly be said that the business of refining sugar is, on the whole, an exceptionally profitable one. Of the six refining companies within Canada, two failed to show a profit on the operations of 1916, and one of these two operated at a very substantial loss. The other barely earned the interest on its bonded indebtedness. The latter mentioned company's net earnings were about 4 cents per 100 pounds.

THE EQUALIZED RATES SYSTEM.

The refineries sell sugar to the wholesale trade, and the latter distribute it among the retailers, according to an equalized freight rate system, so called. This system is of such an intricate character that its operations are not well understood even by those who have operated under it for many years. It is based upon existing railway freight rates but makes wide departures therefrom. Its primary design is to avoid as far as possible wide variations in freight charges for delivery at contiguous places, and to avoid as far as possible the advantages which low railway freight rates and favourable geographical location afford to wholesale houses in the larger centres of population. It decreases the amount of localization of available sales territory which the ordinary railway freight rates and other causes produce.

The equalized freight rate system as applied within Canada to the distribution of sugar has been in operation for about nineteen years. Before the introduction of the system the sugar trade had become much demoralized. It was impossible for retailers in the smaller towns and villages throughout the country to compete with the merchants in larger places, favoured, as these latter were, by the ordinary freight rates. Many were selling sugar at a serious loss. There was universal complaint against unhealthy business conditions. Many months of study were devoted to the problem of equalizing the cost to retailers. A plan was evolved and submitted to the refiners in 1898. The submitted plan, which, after lengthy discussions, was finally accepted, was one which aimed to equalize as much as possible delivery costs and to enable the wholesalers in the different centres to compete with each other at outside points within the natural geographical territory common to the wholesaler in either competing point. To make the arrangements practicable the refineries had to agree to deliver sugar freight prepaid from a basic point (which for Ontario and Quebec was made Montreal) to the competing centres, at less than the actual rates of freight paid and absorb the difference themselves, adding it to the general cost of sugar. Arbitrary rates were fixed for the competing points, so called, meaning the places whereat, in 1898, when the system was adopted, there were wholesale grocers engaged in business. These arbitrary rates maintain their relation to the actual freight rates as the latter from time to time change. They are generally lower than the actual railway rates, but the refineries, additionally, allow a freight rebate upon a sliding scale, which results in the sugar freight rates to the competing point being very low.

The system was brought into operation in all the provinces. An exposition of its application to one province, Ontario for instance, will serve towards an understanding of its application in all thereof.

The favoured "competing points" adopted in the beginning are considered such yet. There has been neither adding nor taking away. In Ontario these were and are: Kingston, Ottawa, Belleville, Napanee, Brockville, Peterborough, Lindsay, Toronto, Hamilton, London, Brantford, Guelph, Berlin (Kitchener), Stratford, Sarnia, Windsor, Owen Sound, Collingwood, St. Catherines, Port Arthur, North Bay, and Sault St. Marie.

For a start the equalized rates for carlots to non-competing points were made higher in most cases than the actual freight rates. The intention was to recompense the refiners for the absorption of much of the freight to the competing points. For some years past, however, the equalized rates to non-competing points have been reduced so that to-day they do not in any case exceed, and, it is claimed, in 85 per cent of the cases are lower, than the actual rates of freight, while the refiners still continue to absorb a great part of the freight, and in some cases the whole of the freight to competing points. The absorption amounts to about 10 cents per hundred pounds in freight and cartage charges. There was nothing in the nature of philanthropy about the operation on the part of any concerned. The wholesalers in many sections had been doing business at a loss; the business of distributing was in a state approximating chaos; the refineries were anxious to secure stability and uniformity. They were particularly anxious to deal exclusively with wholesalers. All these purposes they achieved by making the arrangement mentioned and adding 10 cents per hundred pounds to their general costs of producing sugar. Thus came into operation the equalized rates system. It has proven a good arrangement all round.

Before I can indicate the *modus operandi of the* equalized rates system, I have to deal with the matter of cartage, which is an important element in the cost of the distribution of sugar. It represents not infrequently an amount equivalent to 40 or 50 per cent of the freight charges upon a sugar shipment and it is always a serious item in the net cost to the wholesaler, who must (whether he is recouped or not) pay it twice—into and out of his warehouse on every pound of his sales except by car-

lot. Sometimes he pays three cartages. The present rates per hundred pounds in the following places are:—

Montreal,	for carlots,	4	cents,	and for	less than carlots,	4½	cents.
Toronto,	"	3½	"	"	"	4	"
Brantford,	"	3	"	"	"	3½	"
Hamilton,	"	3	"	"	"	3½	"
Sarnia,	"	3	"	"	"	3½	"
St. Catherines,	"	3	"	"	"	3½	"
Ottawa,	"	3	"	"	"	3½	
Kingston,	"	3	"	"	"	3½	"
London,	"	3	"	"	"	3½	"
Guelph,	"	3	"	"	"	3½	"
Windsor,	"	3	"	"	"	3½	"
Chatham,	"	3	"	"	"	3½	"
Cornwall,	"	3	"	"	"	3½	"
St. Thomas,	"	3	"	"	"	3½	"

Prior to 1898 it had been most usual for a retail grocer of Barrie, for instance, to buy from his nearest competing point, which was Toronto. Taking the railway rates prior to 1898, for the purposes of illustration, to be the same as those of now, the wholesale house in Toronto paid 16 cents per 100 pounds freight on car-lots. Taking the cartage rates of then as the same as those of now, the wholesaler paid 3¼ cents per 100 pounds to his warehouse or storage. Also 4 cents cartage out from his warehouse when delivering at railway on resale. The buyer at Barrie would thus have to pay the price of the sugar at the station of the place of the refinery, freight from the refinery to Toronto 16 cents, two cartages aggregating 7¼ cents, freight from Toronto to Barrie on less than carlots 16 cents or in all 39¼ cents per 100 pounds for freight and cartage on sugar delivered in railway yard at Barrie. Under the equalized rate system the Barrie purchase would work out in the following manner—the equalized rate to Barrie (to be found on consultation of the Ontario Equalized Rate Book) is 32 cents. The railway rate from Montreal less than carlots is 31 cents, add 4½ cents for cartage at Montreal (which under the former system was payable) and we get 35½ cents of a cost at Barrie, buying direct from refinery, as against 32 cents of a cost at Barrie, under the equalized rate system. But under the equalized rate system no account is taken of tare which often runs to 7 per cent of the freight. If to the 35½ cents just estimated there were added even 3½ per cent of 31 cents for tare, or 1 cent, the cost direct from the refinery would be 36½ cents, as against 32 cents under the equalized rate system purchasing through the wholesaler.

The refineries sell to the wholesalers in carlots only and, invariably, rebate to the wholesale buyer, according to a sliding scale, portion of the equalized rate of freight. The Ontario rebate scale is as follows:—

								Cents.
On equalized rates of	17	cents	per	100	pounds	and	under	5
" "	18	to 22	cents	per	100	pounds	and under	6
" "	21	22	"		100	"	"	7
" "	23	24	"		100	"	"	8
" "	25	30	"		100	"	"	10
" "	31	and upwards	per	100	pounds	and	under	12

After the preceding application of the operation of the system to one case, the town of Barrie, its application to a number will be better understood. The following examples consist of four series of three places each within the province of Ontario, each series being selected from a different section of the province. Note that in all cases the equalized rate runs lower than the less than carlot freight direct from the refineries at Montreal to retail buyers' location. In all cases tare is disregarded. If regarded it would accentuate the favourable conditions as respects the equalized rates.

Comparison of Cost of Distribution of Sugar Under Former System with that Prevailing Under Equalized Rates System.								Comparison of what Wholesaler Pays Under Equalized Rate System with what He Derives Under it.						
								Less than Carlot Sales.				Carlot Sales.		
Town.	L.C.L. equalized rate as shown in Sugar Rate Book.	Present railway rates direct from Refineries at Montreal.		Cost under former system (based on present railway rates) of service equivalent to that furnished under equalized rates system.		Choice of possible competing points. The most advantageous point is put first.	Details of cost under former system, at present rates of services equivalent to those now provided. Railway rate to competing point, two cartages, and railway rate to retailer's railway station.	Actual freight and cartage cost to wholesaler, consisting of equalized rates in book to his competing point, minus carlot freight rebate, plus cartage from his warehouse to his railway station, plus local freight to retailer's railway station.		Equalized Rate charged Retailer per "Sugar Book."	Profit of Wholesaler on freight L.C.L. to retailer.	Present railway rate from Montreal to retailer.	Present Ry. Rate plus cartage formerly payable.	Equalized rate (freight and cartage) charged by wholesaler to retailer, being L. C. L. Ry. rate minus freight rebate. Refinery charges same amount to wholesaler.
		L.C.L.	C.L.	From Refinery cartage, Montreal, and railway freight.	From wholesaler see 2 columns to the right.			Items.	Total.					
Barrie	32	31	19	35½	39½	*Toronto*	16+3¼+4 +16	13–5 +4 +16	28	32	4	19	23	20 (32 – 12)
					41½	Hamilton	17+3 +3½+18	14–5 +3½+18	30½	32	1½			
					48½	London	19+3 +3½+23	17–5 +3½+23	38½	32				
					44½	Brantford	18+3 +3½+20	16–5 +3½+20	34½	32				
					40¼	Collingwood	20+3¼+4 +13	20–6 +4 +13	31	32	1			
Gravenhurst	35	31	19	35½	43½	*Toronto*	16+3¼+4 +20	13–5 +4 +20	32	35	3	19	23	(*) 20 (35 – 15)
					41½	Hamilton	17+3 +3½+21	14–5 +3½+21	33½	35	1½			
					49½	London	19+3 +3½+24	17–5 +3½+24	39½	35				
					45¼	Collingwood	20+3¼+4 +18	20–6 +4 +18	36	35				
Midland	36	33	20	37½	42¼	*Collingwood*	20+3¼+4 +15	20–6 +4 +15	33	36	3	20	21	24 (36 – 12)
					43¼	Toronto	16+3¼+4 +20	13–5 +4 +20	32	36	4			
					41½	Hamilton	17+3 +3½+21	14–5 +3½+21	33½	36	2½			
					49½	London	19+3 +3½+24	17–5 +3½+24	39½	36				
*St. Thomas	28	35	19	39½	37	*London*	19+3 +3½+ 8+3½	17–5 +3½+ 8+3½	27	28	1	19	26	18 (28 – 10)
					46¾	Toronto	16+3¼+4 +20+3½	13–5 +4 +20+3½	35½	28				
					46	Hamilton	17+3 +3½+19+3½	14 5 +3½+19+3½	35	28				
					43	Brantford	18+3 +3½+15+3½	16–5 +3½+15+3½	33	28				

Ridgetown	35	38	20	42½	40½	*London*	19+3 +3½+15	17−5 +3½+15	30½	35	4½	20	24	23 (35−12)
					44½	Hamilton	17+3 +3½+21	14−5 +3½+21	33½	35	1½			
					45½	Brantford	18+3 +3½+21	16−5 +3½+21	35½	35				
					44½	Sarnia	20+3 +3½+18	19−6 +3½+18	34½	35	½			
					42½	Windsor	20+3 +3½+16	19−6 +3½+16	32½	35	2½			
Simcoe	31	34	19	38½	37½	*Hamilton*	17+3 +3½+14	14−5 +3½+14	26½	31	4½	19	23	19 (31−12)
					42¼	Toronto	16+3¼+4 +19	13−5 +4 +19	31	31				
					41½	London	19+3 +3½+16	17−5 +3½+16	31½	31				
					38½	Brantford	18+3 +3½+14	16−5 +3½+14	28½	31	2½			
Beamsville	27	31	18	35½	33½	*Hamilton*	17+3 +3½+10	14−5 +3½+10	22½	27	4½	18	22	17 (27−10)
					38¼	Toronto	16+3¼+4 +15	13−5 +4 +15	28	27				
					44½	London	19+3 +3½+19	17−5 +3½+19	34½	27				
					38½	Brantford	18+3 +3½+14	16−5 +3½+14	28¾	27				
Welland	30	31	19	35½	36½	*Hamilton*	17+3 +3½+13	14−5 +3½+13	25½	30	4½	19	23	20 (30−10)
					41¼	Toronto	16+3¼+4 +18	13−5 +4 +18	30	30				
					45½	London	19+3 +3½+20	17−5 +3½+20	35½	30				
					39½	Brantford	18+3 +3½+15	16−5 +3½+15	29½	30	½			
Smithville	27	31	18	35½	33½	*Hamilton*	17+3 +3½+10	14−5 +3½+10	22½	27	4½	18	22	17 (27−10)
					37¼	Toronto	16+3¼+4 +14	13−5 +4 +14	27	27				
Brighton	26	26	15	30½	30½	*Belleville*	14+3 +3½+10	13−5 +3½+10	21½	26	4½	15	19	16 (26−10)
					34½	Napanee	14+3 +3½+14	23−8 +3½+14	32½	26				
					33½	Brockville	12+3 +3½+15	13−5 +3½+15	26½	26				
*Oshawa	29	29	16	33½	39¾	*Toronto*	16+3¼+4 +13+3½	13−5 +4 +13+3½	28½	29	½	16	23	19 (29−10)
					40	Peterboro	15+3 +3½+15+3½	16−5 +3¼+15+3½	33	29				
Port Hope	30	28	15	32½	34½	*Belleville*	14+3 +3½+14	13−5 +3½+14	25½	30	4½	15	19	(*) 16 (30−14)
					38½	Napanee	14+3 +3½+18	23−8 +3½+18	36½	30				
					35½	Peterboro	16+3 +3½+13	16−5 +3½+13	27½	30	2½			
					36¼	Toronto	13+3¼+4 +16	13−5 +4 +16	28	30	2			

St. Thomas and Oshawa are "Jobbing Points," and sugar is delivered cartage free into retailer's store. (*) Special Carlot Rates for Gravenhurst and Port Hope.

Other comparisons of the equalized rates with the ordinary freight rates from Montreal for carlots, follow:—

	Equalized.	Freight.		Equalized.	Freight.
St. John		18	Lindsay	14	17
Halifax		19	Guelph	12	18
Quebec		14	St. Catharines	13	18
Ottawa	8	12	Woodstock	20	19
Belleville	8	14	Sarnia	13	20
Picton	14	19	Sudbury	30	29
Toronto	8	16	Sherbrooke	12	14
Hamilton	9	17	Lennoxville	12	14
Brantford	11	18	Kingston	8	13
London	12	19	Peterborough	11	15
North Bay	23	24	Kitchener	11	18
St. Thomas	18	19	Niagara Falls	19	19
Levis		14	Stratford	13	19
Three Rivers	13	13	Windsor	13	20
Brockville	8	12	Port Arthur	36	42

Points marked 0 indicate all freight absorbed by refinery.

The above rates are for carlots and are all charged on the net weight, but as the freight is payable on the gross weight, the tare of the packages must be taken into consideration. This varies from 1 per cent on bags to 25 per cent on a 25-pound box, so that this item adds considerable to the absorption by the refineries.

The system applies in the Maritime Provinces along the same lines. See the following comparisons of carlot rates, and note from the following and previously furnished examples of its operation that the system not only provides against the retailer being charged more for freight than if he paid the freight and cartage himself to the railway, but that under it the wholesalers and retailers at competing points get their sugar at less than if they paid the actual railway charge for freight themselves:—

EXAMPLES.

Examples— St. John to—	Cost of Living Rate.	Equalized Rate.
St. John	....	
Montreal	18	
Halifax	15	
Fredericton	14	5
Quebec	17	
Ottawa	23	7
Toronto	26	7
Hamilton	27	8
London	29	11

The Quebec freight rebate on carlot purchases is as follows:—

On equalized rates 25 and under, rebate 6 cents per 100 pounds.
" " 26 to 29, rebate 8 cents per 100 pounds.
" " 30 to 39, rebate 9 cents per 100 pounds.
" " 40 and upwards, rebate 10 cents per 100 pounds.

In the Maritime Provinces the freight rebate is 5 cents per 100 pounds flat.

The refineries sell in the West freight prepaid. Their prices at various points are of their own making and vary with the railway rate but not precisely following that rate. They have their own equalized rate, in effect, applied by the refineries and shown by the refineries' price lists. Of necessity, the wholesalers have to observe the prices so set as the sugar prices at particular places, thus one wholesaler reports: "In selling at above prices we have to deduct any difference there may be between freight from Calgary to destination, or from nearest competitive shipping point to our customer."

In all the provinces the equalized rates to "competing points" are arbitrary, but to other than "competing points" as shown in the various Equalized Rates books, copies of which I produce herewith, they are made up by computing:—

(*a*) The arbitrary equalized freight rate from Montreal to the competing point, plus

(*b*) cartage from the wholesaler's warehouse to the wholesaler's railway station, plus

(*c*) The local freight rate from the wholesaler's railway station to the railway station of the retailer. The present figures were framed before the recent advance in cartage rates. The equalized rate for Barrie, for instance, is 32 cents, and was made up of Montreal-Toronto equalized rate 13 cents plus cartage at Toronto 3 cents, plus actual L.C.L. freight rate Toronto to Barrie, 16 cents; total, 32 cents.

Ordinarily the out-of-town buyer of sugar, whether from refiner or wholesaler, pays his own cartage from his own station to his own warehouse, but, by mutual arrangement, all sugar sold at "jobbing points," which within Ontario consist of the twenty-two mentioned "computing points" plus Smiths Falls, Pembroke, Picton, Lindsay, Oshawa, Niagara Falls, North Bay, Sudbury, and St. Thomas, are delivered cartage free into the buyers' warehouses.

When the arrangement was made with the refiners in 1898 they were asked, and they agreed, to sell in carlots only and with cartage from refinery to station and freight to destination prepaid, charging the wholesaler buyer on the basis of the price at the refinery plus the equalized rate to destination, as shewn in the equalized rate book, but rebating freight on such carlots as already indicated.

The equalized rates, as shewn in the rate book, apply to less than carlots. As already indicated they are made up of the total expense per 100 pounds to the wholesaler of laying down less than a carlot of sugar at a given point, that expense being calculated excluding cartage from wholesaler's station to wholesaler's warehouse and excluding wholesaler's rebate of freight as a carlot purchaser, but including cartage from wholesaler's warehouse to wholesaler's station. The wholesaler gets the benefit of the carlot of freight rebate not only in sales within his own city but also on all other L.C.L. sales.

I note one curious result of the system. The wholesale buyer receives his sugar at an exceedingly low freight rate. The carlot rebate to him comes off an already low equalized rate originally fixed upon a carlot basis. This enables him to make a profit off freight when dealing with the retailer. On the other hand the rebate to the retailer carlot purchaser comes off the regular equalized rate which is made up of the equalized carlot rate plus the local less-than-carlot rate from the nearest competing point to the retailer's place of business. The refinery ships carlots direct to purchasers thereof from wholesalers, paying railway carlot rates and charging the wholesaler with the equalized rates minus the carlot rebate. The wholesaler in turn charges the retailer the same rate. Thus on carlot shipments to non-competitive points the refinery is enabled to recoup all freight paid and in some cases to make a profit off the freight. But the refineries no longer charge cartage so that in the end the matter about evens up.

While the equalized rates system, as such, has nothing to do with prices, it cannot be operated with fairness except upon a basic price. Given a basic price and under it every retailer at each given point is able to buy at exactly the same price, delivered, as his competitor in the same place, and every wholesaler wherever located can sell the retailer on equally favourable terms. A St. Thomas wholesaler, for instance, can sell to a Toronto retailer a carlot of sugar as cheaply as can a Toronto wholesaler. If the St. Thomas wholesaler sells L.C.L. in Toronto, he can and must sell at Toronto price. He will make less gross profit than on a sale in St. Thomas, but yet he can sell at some gross profit. The retailer has no inducement to buy from one wholesaler more than

another. All wholesalers can sell carlots at the same price and the same rate of profit. Carlots are delivered direct from the refinery and the retailer is given the benefit of the freight rebate. The system has become accepted as the best and it is the established channel for carrying the article to the consumer. It operates with the least friction and produces the best results. Every retailer gets his L.C.L. sugar purchases at a price at least as cheap as the refiner's current price at the refinery, plus the L.C.L. freight from the refinery to his place of business, so that he has all the advantages of a direct purchase from the refinery, which, by the way, does not desire to sell and does not sell L.C.L.

The adoption of the system entailed the necessity of provision of a uniform code of rules for its application by the salesmen of sugar. These were made up by the wholesale grocers guilds and have been in operation since. They are followed by the trade generally, whether or not guild members. It was arranged between the guilds and the refiners in the beginning that whenever the refiners advanced or reduced their prices they should advise the guild officials who would in turn advise all the wholesale houses and follow the advise with a price-current list giving the refiners' prices. This course is followed. It usually results, but not always, that as one refinery reduces or advances its prices, the others follow suit. The same causes affect all at the same time. The plan of notifying the guild officers was adopted to obviate the necessity on the part of the refiners of wiring all their customers direct. The refiners and the wholesale trade do not claim that the system is perfect, but they do claim that in the last analysis, under it sugar costs the retailer less, and that there are fewer big gaps as to cost laid down amongst retailers. Ordinary freight rates are very inconsistent. The general public has no idea of the basis on which railways fix them. In order to prevent complaints and to appease resentment incident to wide differences in prices in different but adjacent points many manufacturers are forced to deliver their products either freight free or according to arbitrary system of their own, absorbing the freight paid into their general cost of production and delivery.

So far as all the sugar refiners (excepting one company) are concerned, through the acceptance of the system and operation under it with list prices they are enabled to deal entirely with wholesalers who constitute a select and financially well-off class of customers. From the general trade standpoint the sugar trade is given stability and pernicious cutting of prices is avoided. When a fair price is cut no gain results to the general public. It always pays in the end. To the consumer the system means about the same thing as to cost, and trade stability is an advantage to him. I mention that he always pays. Every bankrupt's obligations fall upon him. Every economic loss he must shoulder. The "bad debts," the losses and unearned profits of the manufacturer, the wholesaler and the retailer swell their operating costs. These form the basis upon which their demands of future profits are set. The consumer ultimately pays.

The equalized rates system, therefore, is simply one for arriving at a laid down cost based upon the ruling prices of the refineries at the time of a sale, with the refiners absorbing a considerable portion of the freight. Its object is the delivery to the retailer at as low a rate at least as, assuming that the refinery would sell to him, he could secure delivery direct from the refinery. The system secures it object. It is fair to all concerned, but according to strict law I am of opinion that it is illegal. I shall return to this aspect of the investigation at a later stage of this report.

OPERATION OF THE EQUALIZED RATES SYSTEM.

Since the introduction of the system the refiners and wholesalers have quite generally adhered to it. As new refineries have come into being they have notified the wholesale trade that they were ready to do business under the system then in effect. These notifications have usually been oral. As new wholesalers commenced business they have adopted the conditions as they found them.

The discount terms prevailing up to September, 1915, as between refiners and wholesalers were 5½ per cent off list prices, but in the month and year mentioned these terms were changed to 25 cents per 100 pounds. In June, 1916, a further 5 cents per 100 pounds was allowed as discount for cash. As between refiners and wholesalers the 25 cents per 100 pounds is considered remuneration for distribution, and the 5 cents per 100 pounds discount for cash. These terms prevail all over Canada except in the West of which special mention will be made later on.

The refineries have no agreements as among themselves as to price or limitation of territory, nor have they any formal agreement with the wholesalers as to maintenance of prices. Some sell in carlots to any dealer at list prices, but they do not allow the 25 cents and 5 cents discounts to others than wholesalers. They do not draw any distinction between wholesalers who are members of any wholesalers' guild and wholesalers who are not members of the guild. An exception to the general rule is made with respect to the larger departmental stores to which the refineries sell on their best terms. In the west the Hudson's Bay Company, who are purely retailers, are allowed the British Columbia Company's best terms. The manufacturers too buy from the refineries in all parts of Canada and on advantageous terms.

A summary of the method of sale and distribution in the province of Ontario will sufficiently indicate what is the system prevailing in all of the eastern provinces.

The wholesalers receive price lists from the refineries, and such of them as are members of the guilds are notified also by the secretary of their guild. The refineries advise the various guilds of price changes. The refineries notify the secretaries of the guilds so that they may avoid the trouble of sending out several hundred letters of notification. The guilds have an undertaking with the refineries to assume that burden. The refineries notify direct all of their customers who are not members of the guild. All customers receive in due course the refineries' price lists. The notifications from the guilds are informal—sometimes by telephone or telegraph, and sometimes in writing.

The wholesaler pays cash at 14 days for the full amount of the list price and freight. The refinery prepays the full railway freight rate by its charge to the wholesaler is made up of the list price at the refinery plus the equalized rate shown in the rate book less any proper freight rebate. Two months later the wholesaler receives from the refinery his discount of 25 cents and 5 cents off the refinery list prices.

One refinery has been accustomed to annex to the rebate cheque the following notice: "The attached cheque covers discount on shipment made during (month) 1916 and its acceptance is an acknowledgment that the rules governing the sale of our sugars have been strictly observed." This, if needed, clearly indicates fixing by way of agreement, in other words combination.

The rules referred to are the rules set forth in the equalized rate book. One of these rules is that "the lowest selling price for sugar to all points mentioned in this pamphlet and for towns receiving sugar at these respective points, shall be the refinery list prices at Montreal, ruling on the day and at the time of sale." This, too, shows combination as to observance of fixed prices.

Further, on October 23, 1916, an official of the Ontario Wholesale Grocers Guild notified the trade that "the practice in the past and the rule decided upon when the equalized rates system was first adopted was that in case of an advance by either of the Montreal refiners the highest price would rule, and in case of a decline the lowest price would rule, when listing sugars in prices current. Owing to some objection to this plan it will in future be necessary to list each refiner's prices separately with the understanding that the trade are at liberty to sell either Lantic, Redpath or St. Lawrence at the lowest figure quoted for either product and the usual difference on Acadia." Until recently the Acadia refineries' list prices on granulated sugar ruled 10 per cent below that of the other refineries.

Another of the equalized rates rules appearing within the rate book of the province of Ontario states that the discount to the jobber allowed by the refinery is "given conditional upon the rules, terms and selling prices as per equalized rates book and current list prices of the refiners being strictly observed in all sales to the trade."

Also, when the present, the 39th, edition of the Ontario Equalized Rates Sugar Book was sent out to the trade in December, 1916, it was accompanied by a circular emanating from the Wholesale Grocers Guild of the province of Ontario whereby the trade was requested to impress upon the commercial travellers "that the discount allowed by the refineries is contingent wholly upon the rules and selling terms being observed."

Following is a memorandum of agreement signed by Maritime Provinces direct buyers of Canadian refined sugars in April, 1901, and yet effective. It is believed to be in substantially the same terms as the sugar agreement signed generally between 1899 and 1901, by guild members in all the provinces:—

> "We the undersigned promise and agree with each other that we will positively see that the code of rules as set forth in the equalized rules book, are strictly observed both in spirit and letter, that we bind ourselves to enforce the penalty of discharge of any of our salesmen who knowingly evade in any way the honourable observance of every condition upon which the sugar agreement is based, and we further agree that we will not engage any man so discharged by any house.
>
> "To provide the means for making an exhaustive investigation of reported breaches, when the evidence will warrant such a course, a committee composed of the president and executive committee of the local exchange and any others that they may deem advisable to associate with them in the district in which the complaint is made, is hereby instructed and empowered to engage the services of any disinterested party or parties for that purpose, any necessary expense incurred for same to be paid out of the Maritime Exchange Fund, and should a prima facie case be established against any traveller or principal, the report of the party or parties appointed to obtain the facts shall be submitted to the committee, whose decision shall be final."

It will be apparent from the foregoing that an agreement unquestionably exists, whether or not it is observed, between the refineries and the wholesalers, embracing at least the members of the guilds for the observance of fixed prices communicated from time to time for the sale of sugar. I have already intimated that I consider the existing system of sale and distribution to be in fact fair. At a later stage I shall have to consider whether, notwithstanding, it is in law illegal.

The wholesalers resell as a general rule at the list prices plus the equalized rate to the place of delivery of the sugar. Most of them allow retailers 1 per cent for cash in ten days. This discount amounts to 7 or 8 cents per 100 pounds. When the wholesaler is selling to an out-of-town buyer he quotes him the list prices with Montreal as the basis, to which he adds for each 100 pounds the equalized rate as shown in the rate book, the buyer paying freight and to have credit on his invoice for the actual amount of freight to be collected by the carriers, said allowance to be the freight from the shipping point to destination.

The products of the Atlantic, Acadia, St. Lawrence and Dominion companies are sold generally throughout Quebec and Ontario, but because the latter company sells largely to retailers many of the observations in this section of this memorandum will not apply to that company.

The Dominion company sells its beet root product about 15 cents per 100 pounds less than the cane product of the other refineries.

Some wholesale firms admit having sold at times below the list prices. Some, not members of the guild, adhere to list prices, while some members of the guild do not so

adhere. Some wholesalers maintain that they "can sell at higher prices if they care to." The refineries insist, however, that wholesalers have not this liberty. Most of the wholesalers maintain that even if they had the liberty, circumstances would prevent. The advanced price would not be paid.

Others express that they "have no agreement with sugar refineries to sell at these prices, although we believe that they expect us to sell at not less than price lists."

Says another wholesaler: "We cannot ask higher prices as the refineries would sell at the best prices to the retailers." This firm says that it has frequently sold at less than list prices after an advance "and no one has found fault with us."

A non-guild member says: "We have as a general rule complied with, and acquiesced in, the suggestion of the refiners that we should not sell below list prices. We understood this was a binding term of the sale of sugar to us." But they understand that they are not bound by the rules of the rate book, which they "took no part in framing, nor ever agreed to accept."

A London firm follows the list only as affecting granulated and yellow. On other lines it makes its own prices. It considers that it is bound only as to minimum selling prices.

About 20 per cent of the Wholesale Grocers of Ontario are not members of any guild. It is likely that the proportion is about the same in the other provinces.

The discount for cash payment, when allowed off carlot purchases, is estimated on the net cost after deducting the full car freight rebate.

In Quebec the competing and jobbing points whereat sugar is delivered into the warehouses of the purchasers from wholesalers, cartage free, at the equalized rate quoted in the rate book, are: Chicoutimi, Drummondville, Hull, Joliette, Levis, Sorel, Quebec, Sherbrooke, Three Rivers.

In the Maritime Provinces the competing points are Amherst, Yarmouth, Pictou, New Glasgow, Truro, Halifax, Sydney, St. John, Fredericton, St. Stephen, Moncton and Chatham, and the jobbing points are the competing points plus Woodstock, N.B., Chatham, N.B., Campbellton, N.B., and Edmunston, N.B.

The refineries at Halifax and St. John do not confine themselves to sales in carlots. Further on all sales of lots of 10 barrels and upwards the wholesalers allow a discount of 5 cents per 100 pounds. The terms of sale as between wholesalers and retailers are 30 days net or 60 days with 5 cents per 100 pounds added to the equalized rate, or 90 days with 10 cents per 100 pounds added to the equalized rate. This is a rather curious mixture of freight rates and interest because of deferred payment. Seemingly the Maritime guild had concluded that they had imposed upon the refinery list price "all that the traffic would bear," so they resorted to the device of charging a higher freight rate to those who were not ready to pay cash within a reasonable time.

Interest must be charged at not less than 6 per cent per annum on all overdue accounts. The local secretaries of the guilds give telegraphic or telephonic advice of changes of price to the wholesale dealers. These advices are followed by mail notifications and price lists from the refiners.

The provisions *re* orders received by travellers and mail orders sent in by customers are the same in the upper provinces.

In the western provinces the prices quoted by the British Columbia Sugar Company are followed by the wholesalers regardless of whence come the sugars which they may have for sale. The list prices issued by the various refineries are regarded as binding minimum prices. But to these prices the wholesalers invariably add 5 cents or more per 100 pounds when quoting less than carlots for resale. When selling carlots they charge refinery list price without any discount. The various refineries have their agents throughout the west who advise the wholesalers of advances and declines.

The various refineries maintain stocks of sugar at such points at Winnipeg, Brandon, Edmonton, Regina, and Revelstoke. They issue local lists through their local representatives. The western guilds do not send out any lists.

The St. Lawrence Company of Montreal maintains a stock at Winnipeg and issues a local list of prices. The Canada Company maintains a stock at Brandon as well as at Winnipeg and issues an equalized rate book for Manitoba, Alberta, and Saskatchewan. All sugars sold from the stock at Brandon are sold on a f.o.b. freight-delivered rate according to the company's own equalized rate system as shown in the rate book, a copy of which is herewith. The British Columbia Company likewise maintains an equalized rate system of delivery from its stocks at Regina and Edmonton. Comparison of the rates set forth in the various rate books of the companies would indicate that either of them closely follows the other. The Canada and the British Columbia companies quote their prices by means of a rate book which includes in one price the sugar and the freight rate. From time to time they notify of changes upwards or downwards in the price. The quotations thus run: 30 per cent above book rate, or 50 per cent below book rate; as the case may be.

Sugars sold in Winnipeg for outside points are bought at the price prevailing at Winnipeg, the buyer paying actual freight to destination. No system of equalized rates operates within Winnipeg or the territorial district which that city naturally commands.

The discount allowed by the refiners to the wholesalers varies somewhat in the different western provinces. In Manitoba east of and including Portage la Prairie the discount is 4 per cent; west of Portage la Prairie it is 5 per cent, and a small extra concession is allowed for cash payment. In Saskatchewan it is 5 per cent or 5½ per cent for cash. In Manitoba some of the refineries allow fourteen days, others twenty-one days. In Alberta the British Columbia Company allows 4½ per cent fourteen days time on purchases out of Revelstoke or Vancouver stock, or 5½ per cent net two days on purchases from Edmonton stock. It allows 6 per cent on demand draft off shipments from Vancouver. In British Columbia the British Columbia Sugar Company has an absolute monopoly. Freight rate conditions do not permit of the entry of any of the other refineries into the province. The company issues weekly price lists for various sections of the province and allows a discount of 5 per cent off of the total sugar purchases of its customers per month. The discount is paid by cheque sixty days after the close of the month in which the sugar was purchased. Payment is due fourteen days after shipment, by draft; 5½ per cent is allowed for cash. On resales wholesalers allow from thirty to forty-five days' credit. The wholesalers sell to the manufacturers, allowing them a special discount of 2 per cent off list prices. In the prices quoted in the British Columbia Company's "coast list" for Victoria the cartage from Vancouver is allowed for.

The British Columbia Company, until early in the present year, had been accustomed to require from certain of its buyers, as a preliminary to the payment of discount from list prices, signature and return of the document of which a copy is now produced:—

"1st day of December, 1916.

"To the British Columbia Sugar Refining Co., Ltd.,
"Vancouver, B.C.

"GENTLEMEN,—In consideration of your offer to us of a discount of 6 per cent from all purchases made during the month of November last, we certify that from the commencement of the aforesaid month to the present time we have not sold, nor have we permitted any of our travellers or salesmen or agents to sell, nor have any sugars of yours been actually sold in any way at a lower price than the current price of the refinery as made known from day to day, nor on more liberal terms of credit than thirty days net. We further certify

that during the same period we have bought and sold and dealt in sugar of your company's manufacture solely.

"We are therefore entitled in terms of your offer to the above-mentioned concession of 6 per cent, and we hereby make application for same.

"Yours truly,

"....."

The execution of such a document was, of course, very clear evidence of the existence of an illegal arrangement. The company has now discontinued the requiring of the signature to such documents, and has notified its customers that they are not bound to resell sugars purchased from the refinery at any particular price.

There seems to be real competition for business as between all of the refineries. High freight rates prevent the entry of some of them into some of the provinces, but in all of the provinces except British Columbia there is competition. Besides the home company, the Acadia, three others, the Atlantic, the Canada and the Dominion, sell in Nova Scotia. Besides the home company, the Atlantic, four other companies do business within New Brunswick, the Canada, the St. Lawrence, the Acadia and the Dominion. The latter company alone has more customers within New Brunswick than New Brunswick's home company. In Prince Edward Island, where there is no sugar refinery, four companies compete for the business of the province, the Canada, the St. Lawrence, the Atlantic and the Acadia. All the refineries except the British Columbia compete for business in Quebec, and in this province likewise the outside companies have a greater number of customers than the home companies. The same refineries compete in Ontario as in Quebec. In Manitoba all the refineries of the Dominion are in competition. In Alberta all the refineries except the Atlantic are in competition. In Saskatchewan all of the companies, except the Atlantic, compete. In British Columbia no other refinery but the British Columbia Company is able to sell.

REFINERY PRICES.

Following is a summarization of the course of refinery prices of granulated sugar produced from raw cane sugar for the past eighteen years. The prices given are those ruling from time to time at Montreal. Note the many fluctuations. These in almost every instance will be found to have responded to the ruling market price of raw cane sugar, a condition beyond Canadian control. I annex three charts which will show the course of prices of raw and refined cane sugars in Canada and the United States during 1915 and 1916.

Comparing the fluctuations in the price of raw cane sugar as charted with those of granulated sugar within Canada, it will clearly appear that the prices of refined sugars, in the United States as well as in Canada, are absolutely dominated by the price of raw cane sugar, which neither the United States nor Canada can possibly control.

1899. Minimum, $4.35, running to maximum of $4.65 in September and shading to $4.35 at end of year.

1900. Minimum of $4.40 at beginning of year, shading upwards with slight variations to $5.20 in July and shading to $4.75 in November, and ending at $4.85 in December.

1901. Commencing in January at $4.75, dropping to $4.45 in March, running to $4.60 in June, shading downwards consistently until December, when $3.90 and went to $4 at the end of December.

1902. Commenced at $3.90 in January, shaded down to $3.60 in June, and ran upwards to $3.90 in November, ending at $3.80 in December.

1903. January, $3.80, shading upwards to $4.25 in July, shading downwards to $4 in December, and ending at $3.95 at end of December.

1904. A year of frequent minor changes. January, $4 with practically consistent rise to $5.40 at end of year.

1905. Commencing at $5.45, running upwards to $5.75 during month of January, thence shading gradually downwards to $4.30 at end of year.

1906. $4.20 in January, $4 in February, $4.20 in March, $4 in April, back to $4.20 in June, shaded upwards to $4.40 in September, and ended at $4.30 in December. Minor variations in between prices quoted.
1907. $4.20 in January, shaded upwards to $4.60 in May, and consistently downwards to $4.30 in November.
1908. $4.30 in January, shading upwards to $4.90 in May, shading downwards to $4.40 in December.
1909. $4.40 in January, up to $4.70 in March, $4.60 in May, $4.65 in August, $4.75 in September, $4.65 in October, $4.75 in November.
1910. $4.75 in January, shaded upwards to $5.20 in May and consistently downwards to $4.65 in November and until end of year.
1911. $4.65 in January, shading downwards to $4.25 in February, consistently mounting to $5.90 in September, and shading off to $5.70 in December.
1912. $5.70 in January, shading to $5.40 at end of month, up to $5.60 in February, shading consistently downward to $4.80 in October and until end of year.
1913. Commencing January at $4.80, declining to $4.35 in May, advancing to $4.55 in August and declining again to $4.35 in December.
1914. Commencing in January at $4.35, declining to $4.15 in March, advancing gradually to $4.45 in May, $4.55 in August, advancing gradually to $5.75 before the end of the month; $6.25 in September; $7.05 end of October, declining to $6.75 at the end of the year.
1915. January, opening at $6.30, advancing to $6.80 in February, and declining to $6.05 in September, advancing gradually to $6.65 before the end of year.
1916. January, $6.65, advancing gradually during February and March to $7.45, and during April and May to $8.05, declining gradually during August and September to $7.40, advancing again during October to $7.90 and closing at the end of December at $7.50.
1917. Commencing January, $7.45, declining to $7.25 end of January, and advancing gradually to $7.80 on March 27; $8 on April 5; $8.25 on April 9, and $8.35 to $8.50 on April 17.

Note the sharp advance in price from $4.55 per 100 pounds in August, 1914, to $5.75 in the same month. On August 22 the customs tariff on raw sugar was raised from 40¾ cents to $1.03¾ for 96 degree preferential, and from 57½ cents to $1.37¾ for 96 degree non-preferential sugars. This customs "war tax" as it is called by the refiners, accounts in part for the increased price. It ought to be mentioned to the credit of Canadian sugar refining companies that upon the outbreak of the war, notwithstanding a great increase in the cost of the raw product, the refiners in consideration of the conditions of the time departed from their previous invariable course of following the raw sugar market, and, except for the absorption of the newly added customs "war tax" into the prices of refined sugars, continued to sell at practically *ante bellum* prices until necessary replenishment of their stocks of raw sugar forced them to raise their prices sufficiently to cover the replacement cost. In the meantime very much higher prices for refined sugars were prevailing in the United States. It has been computed that this considerate action on the part of the refineries meant a sacrifice of profits on their part, and a saving to the Canadian consumer, of about $1,500,000.

The highest list price for granulated sugar during 1915 at Montreal was $6.75, the lowest $6 per 100 pounds. The average net price realized by the refineries was about $6.15. The equivalent figures for 1916 were $8.15, $6.60 and $7.28.

The highest list price for granulated sugar during 1915 at New York was $6.15, the lowest $4.80, and the average net price realized by the refineries about $5.56. The equivalent figures for 1916 were $7.65, $5.75 and $6.86.

The following changes in price have been made since November 10, 1916, wholesale price per 100 pounds in the rebate of 30 cents:—

From	$7.85	November 10 to	$7.65	December 13.
"	"		7.55	" 19.
"	"		7.45	" 29.
"	"		7.35	January 20.
"	"		7.25	" 27.
"	"		7.40	February 14.
"	"		7.60	March 23.
"	"		7.80	" 27.
"	"		8.00	April 5.
"	"		8.25	" 9.
"	"		8.35 to 8.50	" 17.

The recent advances in price have been necessitated by sharp advances in the cost of raw sugar, due to a shortage in the Cuban crop produced mainly by destruction of the cane during the recent short-lived Cuban revolution. The original 3,500,000-ton estimate for Cuba has been reduced to 2,600,000 tons.

All the prices previously quoted have been those ruling at Montreal and applicable in Quebec and Ontario with the equalized freight rate added.

In the Maritime Provinces the list price of Atlantic granulated, as well as all other sugars, has generally ruled the same as in Ontario and Quebec. The Acadia Company, whose price for a long time for granulated ruled in Quebec and Ontario at 10 cents under that of the other refineries, has always charged within the Maritime Provinces the same price for granulated as the other refineries. Recently the Acadia refinery's prices have been advanced in Ontario and Quebec to the level of those of the other refineries.

For purposes of comparison I set forth some recently prevailing list prices in Western Canada. Prices are ruling higher now in precisely the same ratio as Central Canada prices have increased since equivalent dates. The increase is entirely due to the increased cost of the raw product, in its turn due to the shortage of the raw product. Cuban conditions control throughout North America because its proportion of the total product of raw is so great

1916.	Place.	Granulated.	Yellow.	Montreal prices same date.	
December 19.	Winnipeg	8.40	8.00	7.65	7.25
" 19.	Brandon	8.50	8.10		
" 19.	Edmonton	8.95	8.55		
" 19.	Camrose	8.82	8.42		
" 19.	Regina	8.47	8.07		
1917.					
January 27.	Winnipeg	8.00	7.60	7.25	6.85
February 14.	"	8.15	7.75	7.40	7.00

As prices change they maintain the same differentials. Brandon, for instance, will rule 10 cents over Winnipeg and Winnipeg 75 cents over Montreal.

In British Columbia the British Columbia Company issues a weekly "Coast Price List." It is divided into four sections: (1) Vancouver-Victoria section, (2) West Kootenay section, (3) Crowsnest section, (4) Mountain and Kootenay Central section.

On the 20th January, 1917, the ruling prices were 30 cents less than on December 19. Some of the prices prevailing at British Columbia points during January were:—

	Granulated.	Yellow.
Vancouver-Victoria	$8 30	$7 65
West Kootenay	8 80	8 15
Crowsnest	8 80	8 15
Mountain and Kootenay Central section	8 79	9 01

On February 16 the preceding prices were 20 cents lower, but they were followed by an advance.

A bundle of price lists of the various sugar refineries of various dates is produced herewith.

Uniformity of prices between the several cane sugar refineries does not always rule. On a number of occasions in 1914, after the declaration of war, and since, there were wide variations, as will appear from the following statement:—

1914.	Canada.	St. Lawrence.	Atlantic.	Acadia.
August 3	$4 50	$4 50	....	$4 55
" 11	4 50	5 00	....	5 45
" 21	5 20	5 70	....	6 15
September 11	5 70	6 20	....	6 15
" 11	5 70	6 20	....	6 65
October 10	6 70	6 70	....	6 65
" 19	6 70	6 70	....	7 15
" 20	7 00	7 00	....	6 95
November 3	7 00	7 00	....	6 65
December 10	6 70	6 70	....	6 45
1915.				
November 10	6 20	6 25	6 25	6 15
" 29	6 50	6 35	6 60	6 40
" 30	6 50	6 60	6 60	6 40
December 2	6 50	6 60	6 60	6 50
1916.				
March 3	6 80	6 80	6 90	6 70
" 23	7 40	7 40	7 70	7 30
April 21	7 70	7 70	7 85	7 60
May 22	8 15	8 15	8 00	8 05
July 29	7 95	8 15	8 15	8 05
" 30	7 95	8 15	7 95	8 05
" 31	7 95	8 15	7 95	7 85
October 20	7 75	8 00	7 75	7 65
" 21	7 75	8 00	8 00	7 90
" 26	7 85	8 00	8 00	7 90
November 9	7 85	7 85	8 00	7 75
April 17	8 25	8 50	8 50	8 50
May 3	8 35	8 50	8 50	8 50

CANADIAN EXPORT OF REFINED SUGAR.

Until 1916 the production of Canadian refineries had been for purely Canadian consumption, but during that year particular conditions enabled the making with the British sugar purchasing commission of contracts for approximately 26,000 long tons of refined sugar, which, although a comparatively small amount when divided, as it was, among three refineries, was nevertheless of material benefit to them. Up to May 10, 1917, further contracts were made by four Canadian refineries with the same commission for 35,000 long tons, or 78,400,000 pounds. This business, which was booked at very satisfactory prices was secured in open competition with the United States refineries. It yielded 5 per cent better than the prices prevailing in the Canadian market on the date of acceptance of the orders.

The capacity of the Canadian refineries is very much in excess of the demand for home consumption. They produce only about 60 per cent of their capacity during any year. They could certainly turn out some 400,000,000 pounds of sugar in excess of their present production, annually. The advantage to them of export business at satisfactory prices is thus apparent. The advantage in reduction of overhead and other expenses, applicable to the benefit of the Canadian consumer, is likewise apparent. But the securing of these export orders has been due in a large measure to chance. It has been the result principally of a curtailment of output in the United States caused by labour troubles, coincident with a heavy local demand there. Under normal conditions the United States refiners have the advantage. They have more favourable freight rates on the raw sugar, and, on account of the enormous production of many of these refineries, they can manufacture at a much lower cost. Even under war conditions, with the competition of all European sugars eliminated, it is impossible for Canadian refiners to compete for English export business except when extraordinary conditions enable. This year, for instance, anticipating the possibility of British export orders, most of the Canadian refiners purchased raw sugars

much in excess of their local requirements. They were subsequently favoured by a rising market and so were enabled, when the opportunity presented itself, to successfully compete. This is highly speculative business, however. The market was judged aright. It might have been otherwise. In that case not only would it have been impossible for the Canadian refineries to compete for export business, but they would have experienced a severe loss. I understand that the British Commission intends to afford to Canadian refiners hereafter an opportunity of fulfilling a portion of the commission's requirements at a price equal to that at which it can purchase at New York. In my judgment this concession will be of little value except in cases where by chance or as the result of dangerous speculation Canadian refineries shall have on hand sufficient raw sugar beyond the requirements for local consumption, and purchased low before a rise in the market, with the commission buying while the market is high. This may well occur, at times during the war, but, when business conditions in Europe return to the normal, it will be out of the question for Canadian refiners to anticipate successful competition with the enormous beet sugar production of Russia, France, Belgium, Germany and Austria, unless, indeed, in the interest of Canadian refiners Great Britain shall provide a slight, but yet sufficient, preference. If in some such manner a permanent export trade could be established the results would be cheaper production and more and more constant employment of Canadian labour.

DISCOUNTS ALLOWED BY REFINERIES AND PROFITS OF WHOLESALERS.

Until the advance in the price of sugar resulting from war conditions, the refineries allowed remuneration on a percentage basis to the wholesaler for handling the product, but deeming that this percentage basis imposed too great a charge upon the consumer they insisted upon the acceptance by the wholesaler of the present system of rebate, which is 25 cents per 100 pounds, and a further 5 cents for payment of cash within fourteen days. Some refineries allow twenty-one days. In parts of the West the refineries allow 6 per cent for spot cash. In Quebec and Ontario the refineries attempt to hold the wholesalers to the observance of list prices, and in these provinces the wholesalers, speaking generally, adhere to the list prices. In the West wholesalers add 5 cents, some 10 cents, per 100 pounds to the list prices for granulated and yellow. In the Maritime Provinces the wholesalers make additions to the list prices according to a sliding scale.

The discounts allowed in Quebec are the same as in Ontario, 25 cents and 5 cents, and upon the same terms. The wholesalers of the province, speaking generally, follow the refinery price lists, treating the prices set forth therein as minimum prices. Some "understand that the prices are to be followed with a slight addition," but on the whole the refinery prices are adhered to. The refineries discourage, within Quebec and Ontario, any advance upon their list prices. In all the provinces when prices drop the retail dealer stands the loss, if they advance he gains.

In Western Canada sales are made in different localities upon a cash basis, two days time basis, or fourteen or twenty-one days time basis. The discounts run from 5 per cent for cash down to 5 per cent and 4 per cent at fourteen or twenty-one days. The 5 per cent basis rules generally in Alberta and Saskatchewan and in that part of Manitoba which is west of Portage la Prairie, the 4 per cent basis rules in Manitoba east of and including Portage la Prairie. Some refineries allow twenty-one days, others fourteen days.

The British Columbia Refinery has a monopoly of that province. None of the other refineries sell within British Columbia. This is not due to any arrangement but is the result of freight expense conditions.

The Maritime Provinces wholesalers make a much better profit off their handling of sugar than their Ontario and Quebec brethren. They accept the refiners' price as

a minimum but make substantial advances on it. The history of the situation is that the wholesalers, after requesting of the Maritime refiner an increased rebate and meeting with refusal, adopted the system of adding to the refineries' list prices, as a way out of having to do business, as they claimed, at a loss. The additions to the list prices are as follows:—

		Add per 100 pounds.
When the refinery price is below $6.50 per 100 pounds in barrels		5 cents.
And when it is $6 50 to	$7 50	10 "
7 50	8 50	15 "
8 50	9 50	20 "
9 50	10 50	25 "

After a full and critical examination embracing conditions in all the provinces, I am convinced that sugar is handled by the wholesale trade on a basis that does not cover the expense of the operation.

The average operating cost of the wholesale grocers of Canada would seem to be about 8½ per cent. The cost of handling sugar is not as great as that of handling other commodities. Nevertheless, according to my estimates, it costs about 7½ per cent to handle sugar. The commodity represents in most cases from 20 per cent to 25 per cent of the wholesale grocer's total business. He must handle the commodity even if he has to handle it at a loss, for the wholesale grocer who would attempt to do business without handling sugar would very soon have no other business to handle; so he does handle the commodity at a loss, except possibly in the Maritime Provinces. There, as I believe, he clears his expense. I have already referred to the different systems of selling in vogue in the Maritime Provinces, Central Canada and the West.

In the Maritime Provinces the general expenses of doing business run at about 8 per cent. In Quebec they are about the same. In Ontario slightly higher. There is not a great deal of difference between the expense of operating in a large city and that of operating in a small one. Rents will be higher in one place than in the other, and labour. But the difference in the volume of the trade offsets. In the West conditions are more variable. In Alberta the cost of doing business runs about 9 per cent. In Manitoba about the same. In Saskatchewan about 8 per cent. In British Columbia about 10 per cent.

Against these operating cost figures set off the actual profits made by wholesalers upon the handling of sugar. A Halifax wholesaler, whose general expenses of last year were 8 per cent, shows that the 30 cents per 100 pounds rebate allowed by the refineries amounts to about 4 per cent. To this rebate, according to the Maritime Provinces system of operation, he adds an additional profit upon the list prices which will amount to an average of about 2¾ per cent. Now, except for 5 cents per 100 pounds further discount allowed by the refinery on purchases of carlots this 6¾ per cent is the total profit of the wholesaler on sugar. The extra 5 cent freight rebate where earned makes a total profit of 7½ per cent. Because it does not cost as much to handle sugar as it does to handle the general run of commodities handled by wholesale grocers, I believe that this profit of 7½ per cent lets out the Maritime Province wholesale grocer. It will cover everything, including capital invested and bad debts. These are all taken into consideration when estimating the general cost of doing business. But I am convinced that this wholesaler is making no profit on his sales of granulated sugar. He is representative of the general class of dealer in his section of the Dominion. An occasional, but very rare, dealer may sell at a small profit or others at a loss. It would depend upon luck and economical administration of business.

A Montreal firm "next door" to Canada's two principal sugar refineries, shows the 30 cent rebate minus expense of carting to his warehouse at 27 cents or leaving a profit of less than 3½ per cent. This means a loss of about four cents to him on every dollar's worth of sugar that he sells.

A Kingston firm shows a net profit of 1½ per cent. It says: "The small margin of 30 cents per 100 pounds is reduced by 1 per cent allowed the customer and the lapse

of time between paying for and disposing of the sugar, so that our margin does not exceed 1½ per cent which, of course, does not pay for handling the stuff, and could we do business without touching it we would only be too glad to do so as it takes a large amount of money to finance it."

In my judgment there should be added to the 1½ per cent mentioned the railway freight rebate allowed under the equalized rates system for purchases of carlots. This would make the gross profit of the Kingston firms who report net profits of 1½ per cent in the vicinity of 2½ per cent, much less than the expense of handling the sugar.

A St. Thomas firm shows a profit of 2½ per cent and a Stratford firm about the same amount.

A Toronto firm showed an operating cost of 55 cents per 100 pound bag of sugar. This would be about 7 per cent on a basis of $8 per 100 pounds. Allow the 30 cent rebate minus cartage inwards 4 cents minus 1 per cent on resale 8 cents, and the balance is 18 cents. On the $8 basis the cost of the sugar would be $7.70 ($8—0·30). The profit of 18 cents on $7.70 would represent about 2¼ per cent. To this profit would have to be added the equalized freight rebate on carlots, whenever the resale was less than a carlot. It would be idle to argue otherwise than that this Toronto firm is handling sugar at a serious loss. The Toronto figures as to costs are in practical agreement.

In estimating the profits of wholesale grocers in the West I take these profits upon the basis of 5 per cent per 100 pounds discount allowed by refineries upon a 14-day payment basis. In some districts 6 per cent is allowed by the British Columbia and other companies for spot cash per demand draft, but the 5 per cent 14-day basis is the most usual mode of purchase. Again, the Canada Sugar Refining Company which sells largely in the near west, allows only a 4 per cent discount. It will be at least fair, in estimating what I believe to be non-existent profits, to assume that the wholesalers of the west are securing, on an average of 5 per cent discount off list prices. Add to this 5 per cent the 5 cents per 100 pounds advance on resale and we have a profit of 5⅝ per cent. With operating costs running from 8 per cent to 10 per cent it is quite plain that the western wholesalers also are selling granulated sugar at less than cost to them.

On the date of a return made by an Alberta firm, sugar in carlots cost $8.50 less 6 per cent demand draft 51 cents or $7.99. The operating expenses of the firm for 1916 were 7½ per cent. Add 64 cents, cost of selling, making a gross cost to time of resale of $8.63. The selling price in small lots was $8.55. This is an example of a purchase made upon the best terms obtainable in Canada, by a firm whose operating expenses were the lowest of any reported, and who sold at 5 cents per 100 pounds above list price, yet they show a net loss on sugar sales.

It ought to be mentioned that the preceding figures all concern granulated sugar. They will apply relatively to yellow sugar. As regards fancy sugars, however, the list prices are not in all the provinces so closely adhered to, and the greatest differences prevail in the prices charged in various localities. The wholesalers in most cases make a profit, but not an unreasonable profit, on the sales of fancy sugars, which are in the nature of luxuries. I have not lost sight of the fact that it is possible for a dealer to make in some isolated transaction a substantial profit upon a sugar operation. For instance, if a wholesaler were to sell five cars of sugar of 30,000 pounds each to a very large retail operator or to a municipality or to the Government, and had the cars shipped direct from the refineries, as he might, to the buyer, he would reap a very substantial profit. But this ought to and would go to the credit of his total operating expense, and although very little appreciable real expense would have been incurred in making the sale, the sale would nevertheless be properly chargeable with a share of the total operating cost of the business. Such an operation, for instance, under the prevailing system of selling sugar, would involve the raising and payment to the refinery by the wholesaler of a sum approximating $12,000, which sum would

remain with the refinery for about two months before the wholesaler would receive from the refinery a cheque for his rebate of $4.50 out of which last-mentioned sum he would have to stand interest, cartage, discount to retailer, and all other expenses of handling and sale.

THE GUILDS.

All of the provinces have more or less loosely organized guilds or associations of wholesale grocers. There are also many local city organizations. Over them all is the Dominion Wholesale Grocers' Guild. The guilds interlock with various boards of trade. A description of the organizations at Montreal will serve as an introduction to the guild system.

The Montreal Wholesale Grocers' Guild is a branch of the Dominion and Provincial guilds and at the same time a branch of the Montreal Board of Trade.

The entrance fee to the Dominion, Provincial and Local Guilds is $250. The annual fee to the Dominion Guild is $10 and to the Provincial Guild is $25, but unless the money is needed by the Provincial Guild it is not collected. The fees payable to the local guild are as assessed, usually $25 or $30 every two or three years, as required.

The entrance fee to the Montreal Board of Trade is $50 and annual dues of $10 for Board of Trade membership, and $10 for branch association membership.

The privilege secured by membership in the Board of Trade and its branches are different from those secured from membership in any of the local guilds. The entrance fees to guild or board of trade are not unrealizable expenditures. As in the case of a seat on a stock exchange the membership may be transferred on payment of a small transfer fee to any person or firm who may desire to join either body. The guild only accepts individuals or firms who are carrying on a wholesale grocery business and does not accept co-operative concerns whose members or stockholders are retailers. The reasons given are understandable. The wholesalers "do not desire to assist in their own elimination by encouraging the clubbing together of retailers to go past the wholesaler and direct to the manufacturer." Further, applicants must not be interested in the profits of any retail grocery business. These guilds are, of course, perfectly legal, and they may perform useful and valuable services, while they keep within the law. Their connection with the sugar refineries is described by one of the refiners as follows:—

> "When any matter of especial moment to the trade generally comes up the refineries meet the association and deal with them as respecting the trade, such meetings occur perhaps once in every year or two. We do not make membership in the guilds a condition of selling any firm. If purchasers are genuine wholesalers we will sell them."

There seems to be some difference of opinion in some quarters as to what constitutes a "wholesaler," but there is none as between the refiners and the guilds. The refiners accept the definition of the guilds. "A person, firm or company carrying on a wholesale grocery business, not being a co-operative concern or a member of a co-operative concern and not being a concern or a member of a concern whose members or stockholders are retailers."

It is unquestionable that some of the refineries when approached to make sales upon wholesale terms have stated to applicants that they would be glad to do business if the applicant were a member of a grocer's guild. This answer, in my judgment, has been given in cases where there was doubt as to the applicant being a "recognized wholesaler" and the refinery sought the imprimatur of a guild as the most convenient method of settling upon the applicant's status. It is equally unquestionable that the guilds have not objected to the refineries doing business with undoubted wholesalers.

notwithstanding that those are not members of the guilds. Occasionally when a refinery has made such an answer to an application to do business, the applicant has gone to a guild and has been told that he was not entitled to become a member. Such results read to the imputation that an alliance exists between the refineries and the guilds. My investigations have led me to a contrary conclusion. The conditions are explainable in the manner stated.

THE STATUS OF WHOLESALERS.

The contention has been raised that what is a wholesale order should be defined and that the refiners should be compelled to accept cash for a sufficiently large order, one car of 30,000 pounds, for instance, upon the refiner's most favourable terms.

Some manufacturers deal with wholesalers on a quantity basis such as suggested but most, apparently, upon the basis that one who deals with the consumer direct is not a wholesaler. These manufacturers refuse to deal with a wholesaler who operates a retail store as well. Some, including the sugar refineries, refuse to accord their best terms to associations of retailers who form a wholesale purchasing agency or what is practically a wholesale establishment, with a fixed and personally interested clientele, and buy in much larger quantities than many wholesalers, so called. One of these associations in the west, for instance, buys for about 500 retailers.

This organization's objects are interestingly stated, at least. It says: "The organization movement was undertaken as a measure of self-preservation; retail merchants are brought into direct competition with mail-order houses who deal directly with manufacturers, and in consequence buy at prices that put the retail merchants out of the running, and an attempt to give his customers merchandise at mail-order prices would mean bankruptcy in a short time. Individually he cannot buy in sufficiently large quantities to entitle him to jobber's prices, but collectively he can; and the mission of Merchants Consolidated, Limited, is, through a consolidated system of buying direct from the factories, to enable the retailer to sell his goods at the lowest possible price and still maintain a working margin of profit, thereby benefiting the ultimate consumer and enabling him to trade at his own town and maintain a business, social and educational centre in the heart of each rural community. On the lines we are already buying from manufacturers, who recognize our standing, we have enabled our retail dealers to very materially reduce their selling prices to the consumer on a great many lines of the necessaries of life. This company was organized over a year ago, and it now has a membership of nearly five hundred recognized merchants. Merchants Consolidated, Limited, is a wholesale or jobbing organization in the strictest sense of the word. It sells only to merchants and it buys in sufficiently large quantities to fill consolidated orders, and to a certain extent take care of sorting orders during the season. These quantities are sufficiently large to entitle it to jobber's prices; that is, the terms which are given to wholesale and mail-order houses."

I have secured from the various refining companies their views as to selling on a quantity basis, and their justification, if any, for being unwilling to sell on their best terms to such organizations as merchants consolidated, the aggregation of about 500 western merchants to whom I have referred. I stated that the refineries which sold to departmental stores which were in competition with the retailers, whose interests wholesalers (the ordinary clientele of the refineries) ought carefully to conserve, might usefully explain the theory upon which they sold on their best terms to departmental stores (purely retailers) but refused to sell to incorporated associations of retailers, legally distinct entities from the retail stockholders therein, and in effect wholesalers, because they sold not over a counter nor to a consumer nor otherwise than to retailers. I must say that the answers secured by me did not seem to cohere. Dealing first with the matter of sale to departmental stores, this exception to the ordinary practice of selling only to wholesalers was defended on the ground of their

"heavy buying power." Refusing to sell to associations of retailers was defended on the ground that selling to them would detrimentally affect the regular wholesale trade upon which the refineries most ordinarily depend for distribution, and that the wholesalers would be opposed to such sales. I would suppose that a consolidation of 500 retailers would have a "heavy buying power." I would suppose that selling to departmental stores would detrimentally affect the retail trade and so affect the wholesale trade and that accordingly the wholesaler ought to have been as opposed in the one case as in the other. In the result I concluded that there was no escape from either one of the following two alternatives. Either the wholesalers had agreed to the refiners selling on their best terms to departmental stores in preference to other retailers, customers of such wholesalers, or else that the refineries had not put up their best answer. I understand that as a matter of fact the departmental stores having reached a stage of growth which enabled them practically to demand recognition demanded and were recognized against the protest of the wholesale trade. However, devoid as I am of necessary information, I yet retain an open mind as to whether, as matter a good business, refineries should commence selling to such organizations as Merchants Consolidated, or cease selling to the departmental stores. Perhaps when the newer organizations have proved themselves they too will be recognized. But perhaps before, then some authoritative tribunal organized for the purpose of solving such questions, may be erected and the precise problems involved, be put before it. I cannot decide the matter. The only remedy at present available is a criminal prosecution. The results would be doubtful, even if the course were advisable. In case of a change in the existing legislation compelling sales upon a quantity basis decision would be easier. I have investigated as to the advisability of such legislation. There was unanimity of opinion from "beet and cane" that it will never do. Here is a summary of the reasons given: Some large consumers, because of various circumstances, cannot buy a very large quantity at one time, but in the aggregate they buy more sugar than those who buy in car lots. At present the wholesaler and retailer buy for their actual requirements. If they could get 10 cents per hundred or more off the price by buying in larger quantities they would when the market is strong as at the present time, buy in excess of their needs. This would produce higher prices. When the refiner buys sugar, he usually covers by selling orders at once. If he had an unsual drain upon him for large orders on account of quantity prices, he would of necessity be compelled in most cases to charge higher prices in order to obtain replacing value. This condition would be handed down from the wholesaler to the retailer and eventually to the consumer. Selling upon a quantity basis would mean the elimination of the wholesaler whom the refineries consider their natural medium of distribution. The experience of many years has proved to their satisfaction that selling through the wholesaler is the safest and most economical mode. They are burdened with the keeping of but few accounts, instead of many. They are intimately acquainted with all with whom they do business and are saved the worry, annoyance and expense of following up many accounts. One of the refineries states that it has not had a bad account on its books for years. They fear that sales on a quantity basis would produce "price cutting" for which they profess an abhorrence born of experience. The margin of profit, they maintain, does not permit sales below list prices and sugar represents so large a proportion of the total of a wholesale grocer's business, that according to their experience price cutting is the beginning of financial ruin.

THE CASE OF THE BRITISH COLUMBIA SUGAR REFINING COMPANY.

Reference has already been made to the form of agreement formerly exacted from its customers, by the British Columbia Sugar Refining Company, and the agreement itself has been set forth. It not only binds to the observance of periodically com-

municated resale prices, but as well binds the customer to trade only with the British Columbia Refinery and to allow no better terms of credit on resales, than thirty days net. The discount from list prices is conditioned on observance of the indicated obligations. Being notified that in the opinion of the Minister of Labour, its selling system was illegal, it wrote that it would welcome a ruling or order from the Government abolishing discounts to jobbers, and would prefer to sell at a net price which would permit sugars to be sold by jobbers at an open price; but while its competitors in the east follow the practice of giving discounts on a fixed sale price it must adhere to the same policy or be threatened with a loss of business. Should the Government see fit to adopt its suggestion it asked that the order forbidding the allowance of discounts on fixed sale prices be made to apply to all sales of sugar in Canada, not only those made by the refining interests, but by the beet sugar manufacturers and importers of refined sugars. It wired that it was willing to conform to any method of distribution that the Government proposes, and it wrote that it was amazed to learn that its method of doing business was considered illegal; that it had simply fallen in with existing practices of other refineries. It had not been its desire to enhance the price of sugar, it had readjusted the rate of discount and co-ordinately the price of sugar to the retailer. It added, "the sugar refiners are all selling according to similar methods. They all sell at a fixed price and allow a discount to their selling agents, the jobbers." On February 15 last the company was advised that its selling practices seemed to differ in some respects from those of the other refineries, which were then undergoing investigation. As to the company's proposal to circularize its customers, it was advised that if the customers were circularized they should be informed that the practice of fixing by agreement resale prices, as well as the allowing of discount in consideration of the maintenance of fixed prices, restriction of terms of credit on resales, and provision against purchasing from competitors, were all illegal.

Prior application having been made to the Attorneys General of Alberta and British Columbia for leave to prosecute the company for a contravention of the regulations, the Attorney General of Alberta granted the necessary permission on February 15, 1917. The Attorney General of British Columbia on February 14 inquired whether the Dominion would conduct the prosecution at its own expense. On February 16 he was answered that the matter need not be determined prior to granting of leave to lay information.

On February 23 the Attorney General of British Columbia wired that representations had been made to him that the Government were considering the matter of full investigation locally and that pending such investigation, prosecution would not be proceeded with. He answered on February 24 that no such arrangement had been made and that there was no necessary connection between the requested investigation and the matter of application for leave to prosecute as for an offence committed.

On February 27 the Attorney General of British Columbia wired that "inasmuch as matters involved are of quasi original nature, I am of opinion that the question of cost of prosecution which must according to the Minister of Labour fall on this province, must be considered now and not afterwards. We await statement from you that Federal Government will bear costs." On March 3 the Attorney General was wired as follows:—

> "Responsibility for and expense of administration of criminal law constitutionally matters of provincial concern. I have supplied evidence of offence and offered to prosecute upon leave given. Seemingly you will not grant leave unless Dominion Government will engage to pay costs of prosecution. I am satisfied that whatever Dominion Government might have done in case leave had been granted it ought not to become party to a bargain whereby consent to pay costs is made the condition of grant of leave to prosecute for a claimed criminal offence so I cannot recommend payment by the Dominion. The responsibility being yours, I leave it with you, but remain to prosecute whenever you shall see fit to grant leave."

On March 6 the Attorney General of British Columbia wired: "Leave to prosecute by way of indictment, the matter of costs standing in abeyance."

In a letter of February 26, the British Columbia Company stated that they were always open to sell and have sold to wholesalers and manufacturers, irrespective of whether they were members of the Wholesale Grocers' Association or not. They reiterated their anxiety to conform to any requirements concerning future mode of operations.

On March 11, Mr. Clive Pringle, of Ottawa, notified me that the refinery was sending to all its customers notices that having been notified that it was illegal to sell its sugars without restriction as to resale prices or terms of credit or otherwise. In view of the company's action, Mr. Pringle was asked to request that prosecution be dropped. No promise was made other than that the matter would be given consideration. Decision as to future action now rests with the Minister. My judgment and recommendation is that in view of the fact that the company's illegal system of selling has prevailed for so many years in so many lines of business, there being an entire absence of any evidence of overcharging, that the prosecution should not go on but that an independent tribunal of the character and shape of the Railway Board should be constituted, before which all business practices seemingly in conflict with the law could be brought for adjudication, and that hereafter the principle should rule that only business practises in fact detrimental to the public should be considered criminal. As the law now stands the character of the combination and its good or evil results, probable or in fact, are immaterial. Throughout Canada there are many combinations and arrangements similar to that made by the British Columbia Company with its vendees. Many of these combinations and arrangements were made in entire ignorance of their illegality. It seems to me unfair to proceed to a prosecution of this refinery unless all other refineries, and as well the hundreds, doubtless, of other manufacturers who have been for many years doing business upon the fixed price basis are also prosecuted. It has amended its practices. Many of the others have not. My idea would be to report for prosecution only such thereof as are more than technically guilty. As I indicate in another place within this report I think that under a system of state superintendence price fixing arrangements can be made beneficial to the public. In a general sense, in view of the possibility of the enhancement of prices by means thereof, I consider them dangerous. I believe that the practice of binding vendees to deal only in the product of a particular manufacturer is illegal and wrong. I believe that the practice of holding vendees to the obligation of selling all similar manufactured products of different manufacturers at the same price is likewise illegal and wrong. There is an overpowering need, in my judgment, for such a board of supervision of such matters as the business interests of Canada which they have so long been demanding. The Federal Trade Commission fulfils that office within the United States. In the hope that some such body may be created for Canada I am holding over twenty or so matters concerning most of which the present laws would in all probability pronounce criminal combinations, but which I am perfectly sure that public opinion would, after consideration, pronounce harmless, if not beneficial. I place the price fixing arrangements of the sugar refineries in this class. See my immediately following remarks concerning price maintenance arrangements.

PRICE MAINTENANCE ARRANGEMENTS.

I have no doubt that the subsisting relations between the refineries and the wholesale grocery trade constitute resale price fixing arrangements made by way of tacit agreement. The fact that the agreement is tacit will not prevent the arrangement from being a combination in restraint of trade or in restraint of competition or for the enhancement of prices, if, in fact, and in the law, the agreement has been made. I hold the view that every resale price fixing arrangement whereby prices are proposed

or fixed by a manufacturer and accepted and agreed to by his vendee as those at which or below which sales shall be made or shall not be made, contravene the Order in Council No. 2777 of November 10, 1916, concerning the cost of living. But, as the result of my investigations into the cost of, and especially into the cost of marketing of, not only sugar but many other commodities, I confess the gravest doubt as to the wisdom of the provisions of the Criminal Code and of the Order in Council mentioned, in so far as these pronounce criminal all combinations in restraint of trade or of competition or for the enhancement of a price, and I venture to respectfully suggest the amelioration of such laws.

It has been my judgment, and as a result of the investigations recently made by me into the cost of living it has become my experience, that all combines so called are not necessarily either of evil intent or of evil influence from the commercial standpoint or from that of the public generally. Canadian laws, however, provide in express terms, and as I understand them the fact that a combination increases the total volume of trade is immaterial if in the process any person has suffered restraint in trade. I believe that the fixing of a price by a manufacturer at which or below which his identified product shall be sold or must not be sold, and followed by an intelligent advertising and selling campaign, is apt to beget within the wholesale and retail trade a confidence that the taking up of the product and the exploiting of it will be on their part "worth while," and that if results are not infrequently in such an immense turn-over of the article that manufacturing and selling costs are so much reduced that the public is enabled to acquire the particular product at a price much below that at which, were it not for the things mentioned, the article could possibly be sold. I believe, too that if Canada is to make its way or hold its own in world competition for export trade, that combinations of manufacturers and others will have to be promoted, even encouraged, with that purpose in view. I believe, in short, that there may be "good" combines as well as "bad" combines. In saying these things I do not intend to be held, for an instant, to have admitted that manufacturers, merchants or others are to be permitted to decide for themselves just what combines are "good" and what combines are "bad' or to fix resale prices which shall be binding on their vendees. I believe that the danger incident to the unrestrained permission of such combines and price fixing arrangements is, from the standpoint of the public, so great that they should all come under the supervision of the State. Notwithstanding what I have said as to my belief that a beneficial result can ensue from the fixing by agreement of a resale price, I believe that such action, as the law now stands, is illegal because it involves the stifling of a competition as to price. A dealer who, tacitly or otherwise, agrees that he will observe list prices from time to time furnished by a manufacturer, agrees that he will put prices up upon suggestion as well as that he will put prices down upon suggestion. To me, therefore, it clearly appears that he has agreed to enhance prices upon suggestion. Likewise where three or four or more persons whose ordinary business is the selling of an article, agree with the producer of the article that they will sell it at a fixed price, it is implied within their agreement that when a buyer presents himself and demands of them a price they will not compete with each other as to price. It has been the theory of the law hitherto, as I have understood it, that this was an undesirable condition. My suggestion is merely that it is not necessarily and always an undesirable condition, that there may be countervailing circumstances which may make the condition either generally or at times desirable. In fact I believe that unrestrained competition is not essential and always desirable—that there may be evil by-products of even competition. I have reached the conclusion that the existing arrangement under which sugar is sold by the refiners within Canada is illegal. I have reached the conclusion that the equalized rate system under which sugar is distributed within Canada is illegal, but I have as strongly reached the conclusion that, notwithstanding the system of sale and the system of distribution have been, and are,

fair and, indeed, beneficial in their operations to the public. I am convinced that, because of these systems and of their operation, sugar is reaching the Canadian consumer at a cost below that at which the refineries can sell it to the retailers or consumers direct. While I appreciate that the effect of the equalized rates system is really to slightly raise, by relation the cost at which some consumers somewhere in Canada (at Montreal, a basis point for instance) might otherwise secure the product, and to the advantage of some other consumers in some other places within Canada, the result aimed at is fair, the differential between the price paid in one section and that paid in another section of Canada for the same product being as much as possible lessened. If the system were of universal application (something like it is applied in some other lines) what would be to the slightest advantage of one section or the slight disadvantage of another section, as respects sugar, would even up with relation to some other commodity, dependent, as respects each commodity, upon the situation of the manufacturing establishment from whence the commodity would be sent forth for distribution. I believe that in most cases the interposition of the wholesale grocer or jobber tends towards economy in distribution. If the wholesaler were eliminated the refiner of sugar, for instance, would require to install a staff of credit men, salesmen, accountants, clerks, shippers, and teamsters which he is now able to do without. He would require to add to his present plant extensive premises. He would require vastly increased banking accommodation. All this would add to the cost of sugar. I am aware, as I write, that I have not mentioned all of the extra expenses which would be incidental to a change in the selling system. From the wholesalers' standpoint the conditions had been such before the introduction of the present system of selling and distributing that unless they were assured of greater stability in the sugar business and of an opportunity to earn something at least towards the cost of disposing of sugar, they, who unquestionably must have sugar to carry on their business, were ready to discourage the sale by themselves of sugar and to compel the refineries to deal with retailers direct, which the refineries did not wish to do. The wholesaler was ready to perform for the refinery a valuable service for which the refinery considered he was entitled to be paid. The wholesalers' commercial travellers would be calling upon the retailers throughout the country for their orders in any event. The refineries were not anxious to have to organize a travelling staff for the purpose of selling sugar alone. The wholesalers had their organized "credit" staffs perfectly *au fait* at all times with the credit of their retail customers. The refineries could not face with equanimity the task of supervising the credit of many thousands of new customers distributed throughout Canada's broad territory. They could not undertake the carrying financially of so many new customers nor provide the staffs for attending to their wants. The wholesalers upon many grounds were a much more desirable class of customers from the refineries' standpoint. The wholesalers in effect said to the refiners: "It will cost you so much to perform the service of distribution. We will perform it for you for so much less, but in order to induce us to undertake the operation you must permit us to handle practically all your product; there must be a mutual agreement that the list prices which you provide from time to time shall be observed all round and that you will only deal with such persons as will agree to observe these list prices as minimum prices at least." I have said that, in my belief, whether this arrangement was legal or illegal, its results have been beneficial. I am convinced, and I have provided a demonstration, that the wholesale grocers of Canada, as a class are handling, selling and distributing to the retailer sugar at less than the cost of such handling, selling and distributing. I am convinced, too, that sugar is being handled, sold and distributed at much less of a cost under the prevailing system than if retailers dealt direct with the refineries, assuming the refineries to be willing to deal direct with them, which they are not.

SESSIONAL PAPER No. 189

The following documents* are produced herewith, as part of this report, for reference and other purposes:—

1. Chart showing cost and freight price variations of Cuban raw sugar, crop of 1915-16, to December 21, 1916.

2. Chart showing weekly wholesale price quotations of raw and refined sugar at New York for years 1915 and 1916, the European and United States yield of raw beet sugar for seasons 1914-15 and 1915-16, with an estimate for the season of 1916-17 (since reduced because of an evident shortage in Cuba), an estimate of the world's sugar crop for 1915-16 and 1916-17 (the latter since necessarily reduced), and a statement of per capita consumption during 1914-15 of thirteen nations.

3. Chart showing weekly wholesale price quotations of refined sugar at Montreal, the trade discount allowed by Canadian refiners to wholesalers, New York wholesale prices for raw and refined sugars, Canadian and United States customs duties, the Canadian and United States consumption, the Cuban and the world's sugar crops (estimate for 1916-17 subject to reduction), the whole for the years 1915 and 1916 and as to part for the years 1913 and 1914.

4. A number of lists of wholesale sugar prices current issued by various Canadian grocers' guilds following upon changes made from time to time in refinery wholesale prices.

5. A number of refinery wholesale price lists.

6. A printed copy of document, signature to which was until recently required by the British Columbia Sugar Refinery Company as a condition precedent to allowance of trade discount to wholesalers.

7. A number of credit slips, etc., from sugar refining companies to wholesalers showing how rebate or discount allowed, its amount, and the time when and the mode whereby deferred payment is made.

8. Equalized rates and rules for the sale of refined sugar in the Maritime Provinces, for winter of 1916-17.

9. The same as 8 for the Province of Quebec.

10. The same as 8 for the Province of Ontario.

11. Manitoba price list of Canada Sugar Refining Co., Ltd., freight prepaid, effective December 19, 1916, subject to change and several times since changed.

12. Alberta, Manitoba and Saskatchewan price list of the British Columbia Sugar Refining Co., Ltd., freight prepaid, effective December 20, 1916, subject to change, and several times since changed.

13. The same as 12, but now replaced by 12. Was made effective 16th May, 1916, for summer of that year, subject to change.

14. A number of weekly price lists, freight prepaid, of the British Columbia Sugar Refining Company, Ltd., based on Camrose, Alberta, winter of 1916.

15. A number of weekly "Coast" price lists of the British Columbia Sugar Refining Company, Ltd., f.o.b. Vancouver or Victoria, winter of 1916-17 to February 23.

16. Tariff of Grand Trunk Railway cartage charges effective January 26, 1917.

17. Tariff of Grand Trunk Railway applicable to car lots of sugar, syrup and molasses from Montreal, Kitchener and Wallaceburg, effective October 16, 1916.

18. Special and Joint Freight tariff of class rates of Grand Trunk Railway from Montreal, etc., effective December 1, 1916.

19. Special and competitive joint freight tariff of class rates from Toronto west, effective December 1, 1916.

20. Special and competitive freight tariff of class rates from Toronto, etc., east, effective December 1, 1916.

21. Concluding chapter of the report on the Federal Trade Commission of the United States on co-operation in American Export Trade 1916.

22. Summary of above mentioned report. Issued May 2, 1916.

* Not printed.

REPORT

OF

ACTING COMMISSIONER W. F. O'CONNOR, K.C.

RE

COST OF LIVING

ANTHRACITE COAL

PRINTED BY ORDER OF PARLIAMENT.

OTTAWA.
PRINTED BY J. DE L. TACHÉ
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY.
1917.

[No. 190—1917.]

Report of W. F. O'Connor, K.C., Acting Commissioner re Cost of Living.

To Hon. T. W. Crothers,
Minister of Labour.

RE ANTHRACITE COAL.

Ottawa, May 29, 1917.

SECTION 1.

INTRODUCTORY.

Anthracite coal is extensively used in the eastern and central provinces of Canada. The amount consumed west of Manitoba is negligible. The coal is all imported from the United States. Canada has no known field of anthracite. There is a small coal deposit at Banff, in western Alberta, which is termed anthracite, but it differs from the article generally known under that name. Canadian importations of anthracite during the fiscal year 1916-17 aggregate 4,568,440 tons of 2,000 pounds each.

The United States anthracite region is confined to about 480 square miles of the State of Pennsylvania. It embraces the counties of Susquhanna, Lackawanna, Wayne, Luzerne, Schuylkill, Carbon, Columbia, Northumberland, and Dauphin.

The coal was first mined in 1765 and, at the rate at which production is increasing, the estimated life of the field is about fifty years. However, as the mines deepen mining costs increase and the resulting price for coal will probably restrict consumption. With a declining output it is possible that the mines may not be wholly exhausted in 200 years. It is considered that the period of maximum production has been passed, so that in all probability Pennsylvania's anthracite has already sold at the lowest price that it will ever reach. But the future holds a ray of hope. A fact not generally known is that there are immense deposits of anthracite coal in Alaska. The area of the field is estimated as high as 950 square miles. About 85 square miles are known to be productive. Chemical analysis has proved that this Alaskan anthracite is at least equal to the product of Pennsylvania. Perhaps, therefore, ere the exhaustion of the Pennsylvania field, seemingly insuperable transportation difficulties will have been overcome. Perhaps, indeed, throughout the winter of, say, 1937 or 1938 the survivors of us may sit about our hearths warmed and cheered by the glowing product of the coal fields of Alaska, transported cheaply to us by giant freight ships, through the air. We are living in an age of wonder workers, so who can safely say that this is merely phantasy. It is only a question of time in any event when transportation facilities to the West will ensure for British Columbia and the other western provinces of Canada an abundance of Alaskan anthracite. Prohibitive freight rates operate now to bar the product of Pennsylvania from the entire Canadian West.

About 90 per cent of the United States production of anthracite coal is controlled by a few large concerns, the principal among them being:—

The Philadelphia and Reading Coal and Iron Co.
The Delaware, Lackawanna and Western Coal and Sales Co.
The Lehigh Valley Coal and Sales Co.
The Susquhanna Coal Co.
The Delaware and Hudson Coal Co.
The Erie Coal and Sales Co.

I have necessarily confined my investigation into the anthracite coal business as conducted in Canada to the matters of costs and prices. I have endeavoured to discover,—

1. Whether the commodity was being unduly accumulated in the hands of dealers, thus producing an artificial scarcity and an enhanced price;
2. Whether the commodity was being offered for sale and being sold by dealers at a fair price;
3. Whether any combines, local or other, existed among dealers, for the stifling of competition, by the fixing of a common price.

I may as well indicate right here my conclusions, some of which will be elaborated as I proceed with this report:—

1. I found no evidence of undue accumulation at any time since the beginning of the war. I found during the season of 1916-17 a general scarcity, instead. Whatever might have been the disposition of any dealer circumstances had not lent themselves to the effectuation of anything like accumulation. At some places there prevailed at times during the past winter almost a famine.

2. I found a most creditable condition as respects the matter of fair prices. The subsequent pages will fully establish this statement. Some rare and only recently reported cases of seeming overcharging are yet engaging my attention. High prices and fair prices are not necessarily different things. It will be enlightening, I am sure, to many, as it was to me, to learn what a very small profit, after all, has been derived by coal dealers, notwithstanding the undoubtedly high prices that the cost of coal to them has driven them to demand.

3. I found no evidence of any general combine as to prices, but I did find ample evidence of local combines (illegal because in partial restraint of competition), made up of all or mostly all of the local coal dealers, in practically every city in Canada. In order to be fair, however, I have to admit that notwithstanding the illegal character of such combinations, they have not been responsible, so far as I can discover, for any enhancement of prices. If price enhancement was their object that object failed. Failure, of course, does not absolve from guilt. It is trite law that the illegality of a combination does not depend upon its success in the effecting of its purposes. But I do not believe that the enhancement of prices is the object of such combinations. They have a different, also illegal object, with which object I must confess considerable sympathy, and my regret that it is illegal, and, as such reprehensible and condemnable. I think that the main object of such local associations is the avoidance of price cutting wars, resulting in sales below cost, as among their members. They attempt to effect this purpose by the setting from time to time of a ruling or common price. They do not bind their members to invariable adherence to such price. It is intended as an assistance to price stableization. They discovered years ago that invariable adherence to a fixed price was impossible to secure in the coal trade, so they now agree in the

most informal way upon a ruling local price or quotation, reserving liberty to each to actually sell below that price, in particular instances, at discretion. This is a very weak species of arrangement but it is in the great majority of cases the only possible arrangement. Its intention is to restrict competition as to price and so it is illegal. Whether as a matter of fact such an arrangement can ever operate to produce unfair prices it is not necessary for me to consider. In the case of the coal dealers it has not so operated. The weakness of the structure of such associations seem to be the consumer's best shield. So slender is the tie that binds the coal dealers together in such local associations that the figures for the from time to time arranged ruling price or quotation are necessarily set by those dealers, whether in the majority or minority, who desire to fix the ruling price lowest. Unless those who would set a higher figure accede there is danger of a breach of relations and an ensuing price war with sales below cost. The avoidance of price wars being the primary object of such associations the lowest desired common price rules. Price wars of a local character have been not uncommon. I shall furnish instances of such and of their effects. I am of those who believe, for reasons elsewhere in this report expounded, that their effects are prejudicial to dealer and consumer alike. The organization of some of these local associations is of the loosest kind. Hardly any of them have any formally expressed agreement as among their members and it is amusing to a lawyer to note the solemn assurance with which this fact is often stated by those in business as freeing them from the responsibilities incident to the existence of an illegal business arrangement under our criminal law. Their arrangements are, in fact, as well understood, and in law as much against the law (even though they be formed by resort to the nod, the wink or the smile) as if executed with the most elaborate formality. While I have throughout my investigations properly conceded the legality of trade organizations designed to promote trade interests, I have insisted always upon the avoidance of combinations or agreements as to prices and I have exacted many obligations to abstain from such.

The figures and information compiled for the purposes of this report embrace the years 1913, 1914, 1915, 1916, and 1917, to date of report. Because the conditions vary so much as between different localities, it has been thought best to divide the territory covered into five zones as follows:—

The Maritime Provinces,
Quebec and Eastern Ontario,
Western Ontario,
Northern Ontario.
West of Great Lakes.

Also, as the larger centres or chief distributing points in the various zones largely govern the conditions of supply and demand and thus affect the prices in the surrounding communities, for purposes of brevity this report will be confined to cost and price data at such centres; for example, prices at Halifax will give the basis for Nova Scotia, St. John for New Brunswick, and so on. The report will deal with the abnormal conditions which existed during the past winter, when certain sections were threatened with a coal famine, the reasons for the conditions will be set forth and recommendations will be made looking to the avoidance of future repetition thereof.

I proceed now to show forth the results of my examination of more than 250 Canadian coal dealers as to the cost to them of anthracite coal delivered to their customers, and the charges made by them to such customers for such coal. The

difference will show the clear profit of the dealer. The elements entering into the cost to the dealer are many. Among them must be reckoned the cost of coal at mines, freight, loss in transit, unloading, storing, maintaining storage, degradation, depreciation and operating expenses, including salaries, rent, advertising, loss by bad debts, selling, weighing charges and delivery. These various costs for the purposes of some following comparisons I shall aggregate into three:—

1. Cost at mine,
2. Freight.
3. Receiving costs, overheads and fixed costs.

I have traced these costs as best I could in every individual case of a coal dealer investigated.

First, then, as to the cost at the mine. The coal is the product of a foreign country, so I cannot go into the matter of the cost of mining and selling to the Canadian buyer. I have to accept as my basis of costs the figures as quoted from time to time by the larger mining and sales companies of Pennsylvania and New York as the selling prices at the mines. These selling prices so quoted by companies producing about 90 per cent of the entire output, are uniform as among them. They drop annually on the 1st of April 50 cents per ton and scale upwards monthly 10 cents per ton until September, whereafter the price remains steady during the winter months. Such prices are referred to in the trade as "circular prices." Those who quote them are referred to as the "large operators," and their prices afford the only reliable basis. It should be mentioned, however, that besides the large operators there are some smaller fry known generally as the "independents," who handle only a very small percentage of the total output—not more than 10 per cent and who are "outlaws" when it comes to selling prices and conditions. They act independently in all respects, cutting under the "circular" prices when production is at its maximum and prices at their lowest, and when the market is tight on account of production and transportation being curtailed by labour shortage, strikes, railway congestion, weather conditions, etc., they take every advantage. In the result the average of their prices runs very high and their coal is generally much inferior, containing a much larger percentage of slate and bone than that of the "regular" operators. The main reason for the inferiority in the quality of coal shipped by the smaller "independent" companies is that a "coal breaker" to properly break a mine production, costs about half a million dollars, and only the large operators can afford the installation. It would be a waste of time, therefore, and no practical results would ensue if I were to attempt to take into consideration, otherwise than by way of exception in exceptional and known cases of purchases from "independents," the figures of these smaller dealers. They quote prices independently of each other as well as of the larger concerns. I would have to figure on a new cost price for practically every sale and itemize each transaction, which process on account of the small percentage of business done by them in this country would not be worth while.

Having discovered the cost f.o.b. cars at mines, I next add transportation charges to receiving or delivery point. These prices and freights are usually based on the long ton of 2,240 pounds. From f.o.b. cars or boats at destination the dealer figures on the short ton of 2,000 pounds as it is on the basis of the short ton that coal is sold to the consumer—for example, if coal costs $4 f.o.b. at mine and freight came to $3, this would make a cost f.o.b. at destination of $7 for a ton of 2,240 pounds, which, reduced to a short-ton basis, would be $6.25. To arrive at the cost laid down to consumer there must be added the overhead and fixed charges, such as the cost of receiving, degradation, storing, handling, selling and general expenses, which, for the purpose of completing this example, might be placed at $1.60 per ton. This would make the total cost of coal laid down in the customer's cellar $7.85. A selling price of, say,

$8.50 would show a profit of 65 cents per ton, or a fraction over 8 per cent. This is the manner in which costs and selling prices are arrived at in this report.

While all the costs, overheads, fixed charges and selling prices shown in the tabulations hereinafter appearing are not guaranteed to be absolutely correct (this because of the insufficiency or unreliability in many instances of the only available records of transactions) they will be found to be approximately accurate at least. I have applied the communicated knowledge of all to the circumstances of each, thus being enabled to fill in many gaps, and by a system of averaging according to localities I have arrived at costs results which, when tested by application to concrete conditions have always stood the test well. By taking the figures of say a dozen firms within a certain district, covering a certain period, and thoroughly comparing and approximating the same, one is bound to arrive at a pretty-close average and to produce a figure which for all practical purposes is acceptable and reliable.

As already stated the only stable mine cost prices are those quoted by the larger producers, whose prices for the past few years have been at their lowest figure in April of each year. On the first day of that month a premium or discount of 50 cents per ton on all coal purchased and shipped goes into effect and lasts for the month. On the 1st day of May this is reduced by 10 cents, making the discount for that month 40 cents per ton, and in June 30 cents, July 20 cents, and August 10 cents, so that in September the price has gone back to the maximum which rules until the next spring. The lower spring and summer prices are designed to encourage the laying in of large stocks by dealers during the spring and summer months, which are the seasons of cheapest production, when the mines would, perhaps, if no inducement to purchase were offered, be forced to cut down output on account of a slack market. This is also the very best time of the year from a transportation point of view, the railways being then free of the difficulties incident to winter weather. Further, lake and river navigation is proceeding, the handling situation is easiest and cheaper freight rates are available, especially where routing by water is possible.

The figures shown in the different tabulations throughout this report, except where otherwise indicated, cover the calendar year. Coal dealers reckon their year as from April to March, so, where any discrepancies are noted between the figures of any dealer and those shown herein as applicable to any particular section of the country the probable reason may be known. Note also that the figures first given are yearly averages. Presently prevailing prices are dealt with at a later stage of the report. Note further that the averages for 1916 are exclusive of the month of December of that year. The reason for excluding that month is that abnormal conditions developed within it and these continued for a time after the first of this year and throughout the winter. It is my purpose to consider these months of abnormal conditions by themselves.

SECTION II.

Average Costs and Prices for 1913, 1914, 1915, and 1916.

MARITIME PROVINCES.

On account of the geographical position of these provinces with relation to the Pennsylvania anthracite coal fields, it is practically out of the question to ship all rail. Accordingly all anthracite for these provinces is forwarded through Philadelphia and New York by rail and thence by water, usually in schooners, to destination. While abnormally high sea freights rule, these provinces must pay high prices or do without the coal. The Maritime Provinces, too, are much more likely to be subjected to a condition of shortage, such as obtained during the past season, than are the central provinces or those farther west. They are next to absolutely dependent upon conditions

prevailing from time to time at New York. They have no known fixed freight rates upon which they can rely, but are dependent upon the possibility of chartering schooners for single trips on the best terms that they can get. Not uncommonly they must buy coincidently with their chance to secure transportation, which means that at times they must buy from the "independents" at exorbitant prices. Understand, therefore, that the following set forth averages are based upon New York and worked out for short tons (2,000 pounds):

HALIFAX.

	1913.	1914.	1915.	1916.
Cost f.o.b. shipping point	$4 50	$4 50	$4 45	$4 85
Freight	1 15	1 15	1 45	2 85
Receiving costs, overheads and fixed costs	1 45	1 50	1 60	1 85
Total	$7 10	$7 25	$7 50	$9 55
Selling price	7 65	7 75	8 00	9 85
Profit	$0 55	$0 50	$0 50	$0 30

These prices are shown for the city of Halifax and can be taken as a basis for the rest of the province of Nova Scotia, plus rail freight and handling to the various interior points. In smaller centres the overheads and delivery costs being less, they will in most cases absorb at least a portion of the extra rail freight.

From the above figures it will be noted that there was a slightly increased cost in 1914 over 1913 and again in 1915 over 1914, but nothing to speak of as compared with that in 1916 which, as may be seen, was almost altogether due to an advance in freight rates, the average cost of the coal itself having increased only 40 cents per ton over that of the previous year. The reason for the abnormally high freight rates was the scarcity of bottoms to handle coal from New York and Philadelphia, directly due to the increasing demand for all classes of craft owing to the war.

The 1916 figures above are estimated, as previously stated, to November only, as, from that month on, and during the winter, the coal situation, in so far as Halifax was concerned, became abnormal. Rail freight congestion and embargoes in the United States, and inability of the mines to secure cars led to curtailment of production, and this, in conjunction with the difficulty in securing shipping at New York and Philadelphia, tended to "boost" prices to unheard of figures. Dealers were forced to go to the "independents" at New York for supplies and these, always on the lookout to take advantage of such a market, had stored up stocks, and having the whip hand raised their figures to the limit, charging as high as $10 and $12 a ton f.o.b. New York and Philadelphia. Coincident with these excessive coal prices were excessive ocean freight charges. Vessels were charging up to $4.25 a ton for coal to Halifax and St. John. It can readily be seen why coal within these cities retailed during the past winter as high as $15 per ton. Looking on, the uninformed might well be pardoned for assuming that the coal dealers were making excessive profits, when, as a matter of fact they were making less than ever before. From my investigation and figures before me I am sure that during last winter most Maritime Province dealers lost money because much coal brought in at these excessively high prices was devoted to the filling of contracts and obligations entered into at earlier prevailing prices. In any event the margin of profit was very small.

The following extract from *The Coal Trade Journal* of November 29, 1916, regarding coal investigations then being held in New York city will be of interest in connection with the foregoing remarks as confirmatory of my statements as to the practices of the "independents":—

"Grand Juries in Three Boroughs begin Taking Testimony as to Wholesale and Retail Prices."

"The grand jury investigation of coal prices in Manhattan borough was begun last Friday, after District Attorney Swann and his assistants had spent some time in conducting an informal examination of wholesale and retail dealers. The first witness was M. F. Burns, who had previously been examined by Mr. Swann and had told of paying high prices for coal bought from independent operators and middlemen. Mr. Burns objected to telling the names of the firms from whom he bought this high-priced tonnage unless formally ordered to do so. Therefore he was subpoenaed to appear before the grand jury and give full data regarding his purchases.

"Mr. Burns testified that he had bought various cargoes of domestic sizes during October and November at prices ranging from $6.75 to $11.95 per ton f.o.b. loading ports, the highest figure being paid on November 2 for a lot of 254 tons. He mentioned several other purchases of several hundred tons each at $10 a ton and upwards. This coal, he stated, had been sold by him at less than cost, the loss being counterbalanced by averaging in company tonnage bought at the circular. Mr. Burns testified that he was forced to buy from the middle houses because the companies were not supplying him with enough coal to take care of his regular trade.

"Mr. M. F. Burns and several other witnesses examined by Mr. Swann asserted that the various laws and court decisions which had resulted in a larger percentage of the independent tonnage being sold by the operators direct or through the middle houses, instead of through the company agencies, were responsible for the present high prices.

"Joseph Gordon, one of the retail dealers examined, said that the Clayton Act was the whole cause of the trouble. 'Formerly,' said Mr. Gordon, there were four or five men who controlled the New York market. Now there are 100 or more. When coal is scarce, as now, the dealer must shop among all these dealers and bid high. These dealers buy at the mines. The competition is high; one offers $6, another makes it $6.50, and a third says, 'I'll make it $7.' The $7 man gets it and the price goes up. In my thirty years in the business I never saw conditions like this before. Dealers don't want to sell now. That's why we're supplying only regular customers. We can't get coal for anybody else. I can't make more than 25 cents a ton profit to save my life.

"Mr. Swann said that in order to continue the coal investigation he would endeavour to have the life of the November grand jury prolonged through December and perhaps January.

"Grand jury investigations of coal prices were also begun in Brooklyn and in Queens last week."

CHARLOTTETOWN, P.E.I.

	1913.	1914.	1915.	1916.
Cost f.o.b. shipping point	$4 46	$4 69	$4 60	$5 00
Freight	1 29	1 25	1 79	3 79
Receiving costs, overheads and fixed charges	1 25	1 30	1 30	1 45
Total	$ 700	$7 24	$7 69	$10 24
Selling price	7 35	7 50	8 00	10 60
Profit	$0 35	$0 26	$0 31	$0 36

The overhead and fixed charges shown are low here on account of low delivery charges and light office expenses.

No trouble or shortage was reported from here.

ST. JOHN, N.B.

	1913.	1914.	1915.	1916.
Cost f.o.b. shipping point	$4 60	$4 60	$4 55	$4 95
Freight	1 12	1 12	1 30	2 87
Receiving costs, overheads and fixed charges	1 10	1 55	1 65	1 83
Total	$7 12	$7 27	$7 50	$9 65
Selling price	7 75	7 85	8 00	9 90
Profit	$0 63	$0 58	$0 50	$0 25

The preceding remarks with reference to Halifax conditions are equally applicable to St. John and the remainder of the province of New Brunswick.

PROVINCE OF QUEBEC AND EASTERN ONTARIO.

The coal for this section of Canada is nearly all brought in by rail. That brought in by water during the season of lake and river navigation is confined to the Lake Ontario and St. Lawrence river ports such as Belleville, Kingston and Brockville, practically all of their supply being freighted across lake Ontario from Fair Haven and Oswego, N.Y., the rate of freight via this route being much cheaper than all rail. Quebec city gets a respectable percentage by water, but Montreal not a great deal on account of there being very little difference between the rail and water rates.

QUEBEC CITY.

	1913.	1914.	1915.	1916.
Cost f.o.b. at mines	$3 31	$3 34	$3 34	$3 57
Freight	2 80	2 85	2 89	2 97
Receiving costs, overheads and fixed charges	1 25	1 35	1 54	1 06
Total	$7 36	$7 54	$7 77	$8 20
Selling price	7 90	8 00	8 15	8 50
Profit	$0 54	$0 46	$0 38	$0 30

The above figures are based on all rail coal. Such coal as is brought in by inland water route during the season of navigation (which is done on account of cheaper freight rates, and as well to assure that a sufficient stock is received) costs less for freightage, but considering the actual quantity of domestic-sized coal received the percentage of loss is very much less after screening and degradation on coal received by rail than on coal received by water. This difference when added, as is proper, to the receiving costs and overheads shows a higher cost for water transported coal. The preceding averages of total costs and selling prices may thus be accepted as fair all round.

The advance of 1916 over the previous year was due to a slight advance in the cost of coal at the mines in April, and an advance of freight rates late in the season. The overhead and fixed charges are gradually getting heavier, owing to advances in the cost of delivery, salaries, etc.

MONTREAL, QUE.

	1913.	1914.	1915.	1916.
Cost, f.o.b. at mines	$3 29	$3 32	$3 32	$3 53
Freight	2 70	2 72	2 72	2 73
Receiving cost, overheads and fixed charges	1 50	1 65	1 70	1 95
Total	$7 49	$7 69	$7 74	$8 21
Selling price	8 00	8 25	8 25	8 55
Profit	$0 51	$0 56	$0 51	$0 34

The increased cost in 1916 was due to a slight advance at the mines, previously shown in the Quebec figures, and it will run right through these tables. The advance of 1 cent in freight is the proportion of a 5 cents per ton advance registered in September, 1916. It will be noted again that overhead and fixed charges are gradually creeping up, which materially adds to the selling price laid down to the consumer. This is due to the increased cost of all kinds of labour, the principal increase being in the cost of delivery, which, in so far as Montreal is concerned is excessively high on account of the shortage of help and of teams. Further reference will be made to delivery charges and a comparison with Toronto figures will be made when dealing with the figures of the latter city.

In considering the matter of freight rates to Montreal I did not overlook a partial transportation by water during the season of navigation. A certain percentage of coal for this city is routed via the St. Lawrence during the summer. The difference in freight is from 30 cents to 40 cents per gross ton in favour of the water route but on figuring up the excessive loss on coal so shipped as compared with shipment all rail the greater degradation account, shrinkage, screening, etc., and extra cost of unloading and handling, I found that the difference in freight was about evened up.

Montreal dealers make an extra charge for delivery to apartment houses and flats. In cases of deliveries within such dwellings, to those living about the ground floor, an extra charge is added for carrying the coal upstairs, of 25 cents per ton for each story, etc., i.e., first floor up 25 cents extra, second floor 50 cents extra, etc. I will make special reference later on to wholesalers and jobbers and peddlers, their methods of buying and selling, and my remarks will necessarily have some relation to Montreal conditions.

During the past winter conditions in Montreal, as well as at other centres throughout Eastern Canada, became very grave. There was apprehension of a coal famine and there was unquestionably a grave shortage of coal. The Montreal newspaper press alleged that very high prices were being demanded. The Minister of Labour of his own motion inquired of the mayor of Montreal as to the conditions, suggested a municipal investigation under the powers granted by Order in Council and tendered Federal assistance and co-operation. The mayor answered to the effect that the city would itself investigate. The civic authorities instituted an informal inquiry, one not under the powers granted by the Order in Council, and, it is said, was satisfied that there had been instances of overcharging by dealers. However, the city instituted no prosecutions, but long afterwards communicated to the Minister of Labour its opinion that some overcharging had occurred. The Minister of Labour thereupon advised the municipality to communicate the facts to the Attorney General of the province of Quebec, the Minister's power to further pursue municipally instituted investigations being confined to such as are held pursuant to and under authority of the Order in Council mentioned. I understand that the civic authorities let their investigation lapse and took no further action. I consider it unfortunate that the Montreal situation should have eventuated as described. When the Minister tendered to the mayor of Montreal the assistance of the department it was by way of courtesy and with full recognition that as respects local conditions a proper local investigation would be the most effective, especially one assisted by Federal co-operation. The effort failed and co-operation being rejected I abstained from particular inquiry into the rumours as to Montreal conditions. If these rumours were true as high as $12 to $15 per ton was being demanded there during February last. These would be excessive prices for the time. Anthracite coal should have been selling there at that time in ton lots delivered for not more than $9 to $10 per ton, according to the distance to be hauled; $10 per ton would have been fair for a long distance haul, but if $12, $15, or higher was demanded these prices were unjustifiable. The existence of a scarcity did not warrant an excessive advance especially when the original cost to dealers had not advanced.

The cost of the coal from the larger producers and sales companies had not advanced a cent. More detailed reference as to prices, etc. in Montreal will be made further on in this report, under the heading of "Costs and Selling Prices during last Winter."

OTTAWA, ONT.

	1913.	1914.	1915.	1916.
Cost f.o.b. at mines	$3 29	$3 32	$3 32	$3 53
Freight	2 91	2 95	2 95	2 96
Receiving costs, overheads and fixed charges	1 25	1 40	1 51	1 62
Total	$7 45	$7 67	$7 78	$8 11
Selling prices	7 90	8 00	8 10	8 40
Profit	$0 45	$0 33	$0 32	$0 29

I feel that I should mention here that during the past winter on the occasion of an extreme shortage, the coal dealers of Ottawa acted, to say the least, very fairly indeed by the public. They held their price at the maximum of $9 per ton in ton lots, when they very easily could have taken advantage of conditions and demanded and received more.

KINGSTON, ONT.

Cost f.o.b. shipping point	$3 29	$3 32	$3 32	$3 53
Freight	2 00	2 00	2 05	2 15
Receiving costs, overheads and fixed charges	1 40	1 45	1 52	1 70
Total	$6 69	$6 77	$6 89	$7 38
Selling prices	7 30	7 30	7 40	7 80
Profit	$0 61	$0 53	$0 51	$0 42

The conditions with regard to Kingston are altogether different from those governing most other eastern Ontario centres, for the reason that practically all of the coal for consumption at this point is freighted across Lake Ontario during the season of navigation from Oswego and other lake ports in New York state. This means 60 cents to 70 cents per ton cheaper coal. About 95 per cent of the city's annual consumption is laid in during the lake freighting season so that there is no chance of a winter fuel famine at this place. Witness last winter. The city had coal to spare and shipped some to outside points at the time of the shortage, to the great relief of the recipients.

Most of the above remarks will be applicable to other Lake Ontario points, such as Napanee and Belleville, and also to upper St. Lawrence towns such as Brockville.

WESTERN ONTARIO.

TORONTO.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	2 30	2 30	2 30	2 35
Receiving costs, overheads and fixed charges	1 35	1 47	1 62	1 87
Total	$6 94	$7 09	$7 24	$7 75
Selling price	7 50	7 65	7 75	8 10
Profit	$0 56	$0 56	$0 51	$0 35

The freight rates given above are based on all rail haul, as, while quite a large quantity of coal is brought in by water ex Oswego and other Lake Ontario ports at a cheaper rate, the difference in freight is eaten up by the extra cost of handling and the greater loss and shrinkage. This is always the case as between water and rail transportation. It about evens itself up in the case of Toronto, so that it is quite fair to use the above figures for the aggregate. The condition in this respect is similar to that of Montreal.

Another point in connection with Toronto is in the method of delivery, the greater percentage of coal having to be bagged. The city regulations are very strict in this

respect. Interference with traffic and obstruction of sidewalks are not tolerated. This naturally adds somewhat to the cost of handling.

As in the case of Montreal there is a great deal of fuel delivered to apartments and flats, which necessitates carrying the coal up one or more flights of stairs. This increases the cost to consumers over and above the selling prices shown above 25 cents per ton and more being added to the cost according to the extra time and labour required to make deliveries.

The delivery facilities in Toronto are more up to date in every way than in Montreal, motor delivery being much more in evidence. This system of delivery, wherever and whenever adopted, materially increases efficiency and tends to reduce cost. As compared with Montreal Toronto has another great advantage, in so far as the item of delivery is concerned, in not having to contend with the steep grades encountered in the former city. The pavements and roads too are kept in much better condition. There is no comparison as between these two cities in so far as winter and spring conditions are concerned, the extremely heavy snow fall and the long and severe winter conditions encountered in Montreal, in conjunction with the hilly nature of the city, making the cost of coal delivery a much more expensive item there than in Toronto.

HAMILTON, ONT.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	2 23	2 23	2 23	2 24
Receiving costs, overheads and fixed charges	1 30	1 35	1 50	1 64
Total	$6 82	$6 90	$7 05	$7 41
Selling price	7 40	7 50	5 50	7 80
Profit	$0 58	$0 60	$0 45	$0 39

ST. CATHARINES, ONT.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	2 13	2 13	2 13	2 14
Receiving costs, overhead and fixed charges	1 20	1 30	1 40	1 53
Total	$6 62	$6 75	$6 85	$7 20
Selling price	7 20	7 30	7 30	7 65
Profit	$0 58	$0 55	$0 45	$0 45

LONDON, ONT.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	2 59	2 59	2 59	2 61
Receiving costs, overheads and fixed charges	1 25	1 40	1 51	1 63
Total	$7 13	$7 31	$7 42	$7 77
Selling price	7 65	7 75	7 75	8 00
Profit	$0 52	$0 44	$0 33	$0 23

ST. THOMAS, ONT.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	2 59	2 59	2 59	2 61
Receiving costs, overheads and fixed charges	1 25	1 40	1 46	1 60
Total	$7 13	$7 31	$7 37	$7 74
Selling price	7 65	7 75	7 75	8 00
Profit	$0 52	$0 44	$0 38	$0 26

As about the same conditions prevail as to costs, freight and selling prices in Stratford, Kitchener, and Guelph as in London and St. Thomas, the above figures may be taken as representative of these places.

BRANTFORD, ONT.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	2 41	2 41	2 41	2 43
Receiving costs, overheads and fixed charges	1 35	1 40	1 50	1 65
Total	$6 95	$7 13	$7 23	$7 61
Selling price	7 50	7 60	7 60	7 90
Profit	$0 55	$0 53	$0 37	$0 29

PETERBORO, ONT.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	3 04	3 04	3 04	3 05½
Receiving costs, overheads and fixed charges	1 25	1 38	1 45	1 60
Total	$7 58	$7 74	$7 81	$8 18½
Selling price	8 00	7 50	7 60	8 50
		Loss.	Loss.	
Profit	$0 42	$0 24	$0 21	$0 31½

It will be noted that a loss is shown for the years 1914 and 1915 at Peterboro. This was due to a price cutting war among the dealers.

The figures as given in the foregoing examples covering the principal cities in Western Ontario can be safely taken as a basis for the whole of that section of the country, all of the coal for the different centres coming through from the mines via the Buffalo and Niagara gateway and circular prices being uniform to the frontier. Therefore in order to arrive at cost price covering the past four years in any other of the cities or towns in this region, the basis cost at mines as quoted above can be taken plus freight to the frontier ($2 per gross ton) $1.79 net ton, to which must be added freight to the centre desired plus overhead and fixed charges, which, as a maximum, would run about the same as say St. Catharines for the smaller towns and Peterboro or St. Thomas for the larger, see following two examples:—

GALT, ONT.

	1913.	1914.	1915.	1916.
Cost price frontier	$5 08	$5 11	$5 11	$5 32
Local freight	0 80	0 80	0 80	0 82½
Overhead and fixed charges	1 20	1 30	1 40	1 53
Total	$7 08	$7 21	$7 31	$7 67½

Thus we arrive at the approximate cost price per net ton delivered in Galt.

WINDSOR, ONT.

	1913.	1914.	1915.	1916.
Cost price frontier	$5 08	$5 11	$5 11	$5 32
Local freight	0 89	0 89	0 89	0 91¾
Overhead and fixed charges	1 25	1 40	1 46	1 60
Total	$7 22	$7 40	$7 46	$7 83¾

It will be noted that there is a slight advance shown in local freight in 1916. This advance of 10 per cent went into effect on September 15, 1916.

NORTHERN ONTARIO.

NORTH BAY.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	3 47	3 47	3 47	3 52
Receiving costs, overheads and fixed charges	1 25	1 25	1 35	1 55
Total	$8 01	$8 04	$8 14	$8 60
Selling price	8 50	8 50	8 60	8 85
Profit	$0 49	$0 46	$0 46	$0 25

SUDBURY.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	4 29	4 29	4 29	4 31
Receiving costs, overheads and fixed charges	1 25	1 30	1 42	1 58
Total	$8 83	$8 91	$9 03	$9 42
Selling price	9 25	9 25	9 25	9 70
Profit	$0 42	$0 34	$0 22	$0 28

SAULT STE. MARIE.

As by far the greater percentage of coal used in this city is brought in by water ex Buffalo and as the same is imported by a couple of large concerns, I will incorporate their figures as supplied for the purposes of this investigation and report:—

First:

	1914.	1915.	1916.
Cost f.o.b. steamer Buffalo	$5 98	$5 65	$5 60
Freight	0 75	0 60	0 60
Receiving costs, overhead and delivery	1 60	1 45	1 95
Total	$8 33	$7 70	$8 15
Selling price	9 25	8 50	8 75
Profit	$0 92	$0 80	$0 60

This firm states as follows:—

"The above statement is taken from our books and will be found absolutely accurate with the exception of a variance of a few cents in costs, not making a difference of more than 5 cents per ton in three years' statements if detailed copies of our sales records were taken."

Second:

	1913.	1914.	1915.	1916.
Cost of coal in their sheds	$6 00	$6 05	$5 75	$5 74
Overhead and delivery charges	1 40	1 46	1 45	1 50
Total	$7 40	$7 51	$7 20	$7 24
Selling price	8 78	8 46	8 26	7 60
Profit	$1 38	$0 95	$1 06	$0 36

It will be noticed from this return that while the price of coal advances somewhat in 1916 the firm's cost in this year is somewhat lower than for 1914-15, which can only be accounted for by their having paid the minimum freight charge during the last two years as against the maximum for 1914-15, there being a variation of from 30 cents to 75 cents per ton.

Another peculiar feature of this return is the extremely low selling price for 1916 as compared with previous years. On being questioned regarding this point they gave the following explanation:—

> "In the season of 1915-16 we had three firms who undertook to do a rail business on a cartage basis, that is they got in coal in the winter time to have work for their teams and in order to hold our trade we had to meet their price, in fact we made the price so that they could not clear themselves as we had a big stock on hand and had to sell it. This accounts for the lean year."

In short there was a local war in the coal trade. Somebody was being taught a lesson.

Comparison between the two foregoing sets of figures shows that the latter concern must have purchased their coal to a great deal better advantage than the former firm or from 75 cents to $1 per ton less all round.

	Cost Buffalo.	Freight.	Unloading and storing, about.	Total.
First company	$5 65	$0 60	$0 30	$6 55
Second company		Total for above.		5 75
			Difference.	$0 80

The difference at between the two sets of figures representing overhead and fixed charges is accounted for by the fact that the item covering unloading and placing in storage, which should amount to about 30 cents per ton, is bulked with the cost of coal and freight in the case of the second concern.

In passing I might remark that these companies show by far the best profits of any which I have cognizance of, taking it all in all, for the past four years.

All rail coal for Sault Ste. Marie figures out as follows per net ton:—

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 29	$3 32	$3 32	$3 53
Freight	4 10	4 10	4 10	4 10
Approximate receiving costs, overheads and delivery	1 30	1 40	1 50	1 65
	$8 69	$8 82	$8 92	$9 28

Taking average selling prices as given above it can be seen that any all-rail business would be carried on, especially during the past two years, at considerable loss.

WEST OF THE GREAT LAKES.

As with all other conditions those west of the Great Lakes with reference to coal are entirely different from those existing in eastern Canada.

It will be realized at once that in so far as anthracite coal for consumption in northwestern Ontario, Manitoba, and points farther west is concerned, all rail haul is out of the question on account of prohibitive freight rates as against rail and lake transportation during the season of navigation. Hence all supplies of Pennsylvania anthracite for Western Canada are brought in and stored at Port Arthur and Fort William during the lake season. While some of the larger dealers, with headquarters in Winnipeg, purchase their supplies f.o.b. steamers at Buffalo and other shipping ports and store the same on the different docks of the railway companies at Port Arthur and Fort William resizing and screening from time to time as the coal is moved farther west, some of the producing companies place large supplies in stock on their own account which they dispose of to wholesalers and dealers at circular prices f.o.b. cars on somewhat the same basis as at the mines or Buffalo plus extra freight

and handling charges. Also a certain percentage is sold by the producers on what is known as "consignment basis," that is trade arrangements are made whereby the coal remains in the possession or ownership of the producing company until it is sold, the dealer in effect selling on a commission basis, except that he has to assume liability in connection with credit if any is extended, but is relieved of all liability in connection with storages, degradation, etc.

On account of the different method of handling coal at Port Arthur and Fort William from that prevailing at different points in Eastern Canada, the coal being taken care of, stored and resized by the railway companies or their subsidiaries, the cost is very materially added to, a charge of 50 cents per net ton being made for the above service on coal for local consumption and 30 cents for that shipped to points further west. There is also an additional local freight, or switching charge from storage docks to dealers yards in Port Arthur and Fort William, of 20 cents per ton. Again the loss through degradation is very heavy on coal shipped and handled in this manner. It amounts to at least 40 cents per ton. The above figures totalling $1.10 are approximately a fair average for the year 1916 and will be shown as a separate item in the following table covering:—

PORT ARTHUR AND FORT WILLIAM.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 40	$3 40	$3 40	$3 65
Freight	2 10	2 10	2 10	2 10
Storage, screening, degradation and switching charges	1 05	1 05	1 05	1 10
Overhead, fixed and delivery charges	1 10	1 20	1 30	1 40
Total	$7 65	$7 75	$7 85	$8 25
Selling prices	8 20	8 20	8 30	8 65
Profit	$0 55	$0 45	$0 45	$0 40

The preceding figures are based on the business of two or three of the larger wholesale and retail dealers and as they take care of by far the greater bulk of the retail business these figures can be accepted as a fair representation of costs and selling prices prevailing during the past four years.

The other smaller business done by a few retailers, who buy from the wholesalers above referred to and from Winnipeg firms who stock at Port Arthur and Fort William, pay on an average about 50 cents per ton more for their supply, but as their overhead, fixed and delivery charges are much less and as on an average they sell at slightly higher prices, their profits on the whole would average about as above.

The figures received as between the two cities show a slight difference as to selling prices, but the above table strikes a fair average.

WINNIPEG.

	1913.	1914.	1915.	1916.
Cost f.o.b. mines	$3 40	$3 40	$3 40	$3 65
Freight	4 40	4 40	4 40	4 40
Re-shipping charges and loss through shrinkage and degradation Port Arthur and Fort William	0 80	0 80	0 80	0 85
Overhead, fixed and delivery charges	1 30	1 40	1 50	1 65
Total	$9 90	$10 00	$10 00	$10 55
Selling price	10 75	10 75	10 25	11 15
Profit	$0 85	$0 75	$0 15	$0 60

The above figures are all made up covering the calendar year from January to December, the latter month presenting no abnormalities. This is specially mentioned with reference to Winnipeg in view of the fact that there as in other places the coal

year runs from April to March which naturally would show somewhat different figures. As a matter of fact Winnipeg business showed a loss instead of a profit for their coal year from 1st April, 1915, to March 31, 1916, on account of price cutting, most sales being made at $10 per ton.

The figures shown are compiled from those of the larger wholesale and retail dealers. They show the minimum cost and maximum profit on retail business, the retailers buying direct from the producing companies f.o.b. Lake Erie ports. A great deal of the supply of the producers is sold wholesale to dealers f.o.b. Port Arthur and Fort William, on which sales a maximum profit of about 50 cents per net ton is made.

The smaller retail dealers who buy from the wholesalers and producers who stock at the head of the lakes, have to pay up to 50 cents per ton more for their coal, and as a consequence their profits run somewhat less than the figures as shown above, but because their overhead and fixed charges, taking into account shrinkage and loss through degradation, which they are largely free from, would be somewhat less than those of the larger concerns, their average profits would be for the past four years about as follows:—

1913, 65 cents. 1914, 50 cents. 1915, (35 loss). 1916, 25 cents.

BRANDON, MANITOBA.

	1913.	1914.	1915.	1916.
Cost f.o.b. Port Arthur or Fort William	$6 80	$6 90	$6 90	$7 15
Freight	3 50	3 50	3 50	3 50
Overhead and delivery charges	1 15	1 15	1 15	1 25
Total	$11 55	$11 55	$11 55	$11 90
Selling price	11 85	11 85	11 85	12 18
Profit	$ 0 40	$ 0 30	$ 0 30	$ 0 28

The cost prices as will be noted are given f.o.b. Port Arthur or Fort William as the bulk of coal is purchased through Winnipeg wholesalers at the head of the lakes.

The overheads and delivery expenses as given are in my opinion entirely too low. This fact is ascribable to inefficient cost accounting. If all items which should enter into this cost were taken into account I figure that the margin of profit shown for 1916 would be wiped out.

From this point west anthracite coal does not to any great extent figure as a fuel necessity and as prices further advance anthracite will be altogether superseded by western bituminous and lignite coals. Recent advance in cost and the long and expensive freight haul have already curtailed its use, and as Canada from Brandon, or I might say Winnipeg west, can get along very well without anthracite and obtain sufficient quantities of our own domestic coal at less cost for all needs and purposes, no object of this report can be served by the supply of any extensive data covering points further west. We are approaching the section of Canada where lignite and bituminous rules for domestic purposes. However for purposes of comparison I will give some figures prevalent at a few of the principal centres, Brandon and west, covering local bituminous and lignite, also anthracite, where at some places a small quantity is shipped in.

Selling prices during 1916:—

BRANDON.

Bituminous,	Souris	lump	$5 25 net ton.
"	Tabor	"	9 50 "
"	"	"	8 50 "

These figures when compared with anthracite prices, tell their own tale

REGINA, SASK.

Anthracite—	1913.	1914.	1915.	1916.
Cost f.o.b. Winnipeg	$6 80	$6 90	$6 90	$7 15
Freight	4 50	4 50	4 50	4 50
Overhead and delivery charges	1 25	1 25	1 35	1 50
Total	$12 55	$12 65	$12 75	$13 15
Selling price	13 00	13 00	13 10	13 55
Profit	$ 0 45	$ 0 35	$ 0 35	$ 0 40

Only a small quantity is handled. Not more than 5 per cent of the consumption.

Western bituminous sold at Regina last season at $8.50 per ton, Souris lump at $5.50 and Lethbridge nut at $7.

SASKATOON.

Only a very few cars of anthracite were handled here during the last four years. It cost about as follows, f.o.b. Saskatoon.

	1913.	1914-15.	1916.
Cost	$11 45	$11 50	$11 80

It retailed at from $13 to $13.50 which when minimum overhead and delivery charges are added to the cost of the coal gives a very small margin indeed.

The principal fuel used here is the Western lignite which cost delivered during 1916 from $8 to $8.15 per ton and retailed for $8.50.

ALBERTA.

Practically all of the coal used in this province, with the exception of a small percentage of near anthracite mined at Banff, Bankhead Mines, is confined to local bituminous and lignite, and below will be found costs and selling prices prevailing during the past four years:—

CALGARY.

	Cost at mine.	Freight.	Charge.	Unloading.	Comm.	Selling Price.
1913	$3 85	$1 80	$0 50	$0 15	$0 70	$7 00
1914 to August	3 85	1 80	0 50	0 15	0 70	7 00
1914 to December	3 85	1 40	0 50	0 15	0 70	6 60
1915 to August	3 85	1 40	0 50	0 15	0 70	6 60
1915 to December	3 25	1 40	0 50	0 15	0 70	6 00
1916	3 25	1 40	0 50	0 15	0 70	6 00

From the above figures it will be seen that instead of this class of coal advancing at this point the cost has been reduced both as to mine cost and freight. I understand that the cost at the present time is 25 cents per ton higher at the mine, making the selling price $6.25. The commission shown is gross out of which has to be deducted overhead costs outside of cartage and unloading, which leaves a very small margin of profit to the dealer.

NEAR ANTHRACITE.

From Bankhead Mines.

Years.	Coal.	Cost at Mine.	Freight.	Charge.	Unloading.	Selling price.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1913	Furnace size	5 65	1 45	0 50	0 15	8 75
	Nut	4 20				7 00
1914	Furnace size	5 65 to Sept.	1 45	0 50	0 15	8 75
	Nut	4 20				7 00
	Furnace size	5 65 from Sept.	1 10	0 50	0 15	8 50
	Nut	4 20				6 75
1915	Furnace	5 65	1 10	0 50	0 15	8 50
	Nut	4 20				6 75
1916	Furnace	5 65	1 10	0 50	0 15	8 50
	Nut	4 20				6 75

The reduction of 35 cents per ton in the freight rate in 1914 caused a reduction of 25 cents per ton in the selling price, but as there is an additional charge of $2 per car switching this about takes up the other 10 cents per ton saved in freight.

The above selling prices it will be noted only show a margin of from 70 cents to $1 per ton, but when other overhead charges are taken into account there is a very small profit left.

EDMONTON.

There is no anthracite coal handled or used in this city. Average cost and selling prices:—

	Cost at Mine.	Freight.	Handling and delivery.	Selling prices.
1913	$3 25 to $3 50	$0 40	$0 80	$4 50 to $5 00
1914	3 00 to 3 25	0 40	0 75	4 00 to 4 50
1915	2 25 to 2 75	0 40	0 50	3 25 to 4 00
1916	2 75 to 3 25	0 40	0 60	3 75 to 4 25

From the above figures it will be seen that very cheap coal is available in this city, chiefly on account of the excessively low freight rate. Also there has been a considerable reduction in cost during 1915 and 1916 as against the two previous years, 1913 being the highest of all.

The selling prices seem to me to be remarkably low, showing in fact scarcely any margin of profit, and this in the face of the more than modest figures allowed for handling and delivery, the same seeming to decrease each year instead of advance as they have in other parts of the country, owing to increased cost of doing business. I am inclined to think that the dealers are figuring this item altogether too low and that if an accurate overhead was figured out, it would be found that no profits were being made in the retail coal business. With some it is a "side line" merely.

As mentioned before there is a small quantity of near anthracite in this province, at Banff. The total output for 1915 was 125,732 tons. I take these figures from the annual report of the Department of Public Works of Alberta. This coal costs about $2 per ton more at the mines than lignite. Only about 20,000 tons were used for domestic purposes in the province during 1915.

BRITISH COLUMBIA.

Practically all of the coal used for domestic purposes in this province is bituminous, locally mined, the very small proportion of near anthracite shipped in from the Bankhead Mines of Banff not being worth taking into account as the tonnage is so small.

The coal conditions in British Columbia from mine costs right along the line to retail selling prices, were very thoroughly gone into by a Royal Commission appointed by the British Columbia Government in 1913. A most comprehensive report was issued and as costs and selling prices have not materially changed since that time I will not embrace any figures relative to this province in this report which after all is intended to deal with anthracite conditions only. To transport anthracite from the head of the lakes at a rail freight of about $8 per ton would make the entry of Pennsylvania anthracite into competition with domestic coal out of the question. Accordingly British Columbia does not use anthracite coal. But I may state as a matter of interest that the average retail selling prices of coal in the three principal coast cities of New Wesminster, Vancouver and Victoria during the past four years have been about as follows: Lump, $7.50, and nut $6.50 per short ton. From these prices it can be seen that the consumer in this part of the Dominion is in an enviable position as compared with his brethern in Central and Eastern Canada.

SECTION III.

Cost and Selling Prices during Winter of 1916-17.

The main cause, in my opinion, of the higher prices which prevailed during the past winter was the failure of the larger producers to complete a great many of the orders taken by them, the average discrepancy being from 25 to 35 per cent. This made it necessary for dealers to go into the open market and secure supplies from independents or wherever they could, and at enhanced prices, in all cases away above the ordinary or circular prices. I will now consider the circumstances affecting particular districts and cite the presently ruling costs and selling prices.

HALIFAX AND ST. JOHN.

In my previous references to these cities and the Maritime Provinces in general I very fully explained their position and afforded reasons for the scarcity and high prices. There had been no enhancing of prices by dealers, so far as I had been able to learn, in order to secure excessive profits. The conditions were due to the increased cost of coal in New York and Philadelphia and to higher freights. A great many of the dealers were caught short of coal and had to fill at a loss many orders contracted for at much lower prices than they were able to buy for in any available market. Prices as high as $11 and $12 per ton were paid f.o.b. shipping point, meaning $9.82 to $10.72 per net ton. Add to this $4 to $4.50 per ton freight and we get $13.82 to $15.22 on boats at destination, not to mention overheads and handling costs. Coal purchased at these prices was retailed at $15 and $16 a ton to new buyers.

The following extracts taken from communications received from a couple of the principal dealers in St. John will be of interest:—

December 12, 1916.

First,—

During October and November the anthracite prices in New York advanced in a few weeks from the circular prices to prices ranging up to $12 per ton f.o.b.

"By strenuous efforts we were able to secure a small quantity of coal before prices advanced to their highest. This coal cost us $7.50 in New York, $3.50 freight, 25 cents insurance and other charges and $1 handling charges here, making a total of $12.25 per gross ton or about $11 per net ton delivered to consumer. Our selling price for this is $12, but we had to restrict orders to small quantities until we could see a chance to get more coal and we have also had to use a large portion of this $11 coal to fill orders taken earlier in the season at $9.50 and $10.

"Thus in spite of our best efforts to secure coal our volume of sales of anthracite this year has been greatly reduced, and as we are making almost as many losses as profits on our deliveries we do not expect to be able to show any profit on our anthracite business this year."

Second,—

"FEBRUARY 10, 1917.

"In closing I think that the price of $12 ruling in November needs some explanation. With that in view I wish to say that the costs of feed, teamsters' wages, yard labour, and all that kind of thing have not only advanced but the quality particularly of labour, is not as good as before the war, and turns out less work while demanding a higher wage. In addition to that the price of coal in New York, where ours come from at the time these prices were set was close to selling prices in St. John, so that the replacement value of coal we had in stock was dollars more than the local price.

"Next May if the coal market eases off any of the stock that we have on hand will practically net us a loss of $5 per ton. So this price of $12.50 ruling in November while it might seem high as compared with the actual cost, it is not high when these different items are taken into consideration. Personally I am much exercised as to how the season is going to turn out.

"It looks at the present time that there will be few if any dealers who will make any money here this year."

The above quotations in my judgment thoroughly and truthfully explain the abnormal price conditions in the Maritime Provinces.

The prevailing April prices there have been $12.75 to $13 per ton for coal which cost $10.50 to $11 at docks. Add $1.85 for other expenses as shown in the first section of this report.

QUEBEC AND EASTERN ONTARIO.

QUEBEC CITY.

As about 80 per cent of the coal imported by Quebec is brought in by water which necessitates the transporting of it during the season of navigation on the St. Lawrence, under ordinary conditions the winter stock is practically all secured ahead and stored, thereby freeing the city to a great extent from the extreme conditions which prevailed elsewhere during last winter.

I have not received or heard of any complaints *re* shortage of coal or extreme prices being charged in Quebec, the maximum selling prices being from $9 to $9.50 until late on in the winter and early spring, when it was found necessary by some dealers whose stocks had become depleted on account of the excessively long and cold season to bring in extra supplies. For these higher prices were paid. Owing to the difficulty of obtaining requirements through regular producers, this coal cost as high as $10 and $11 f.o.b Quebec and retailed at $13. This only affected a small tonnage, however.

Owing to the exhaustion of the supply of cheaper coal this spring a substantial reduction in cost cannot be looked for until the larger tonnage commences to arrive at minimum cost prices.

The prevailing selling prices for the month of April were $10 to $12 for coal costing $9.50 to $9.80 at the docks. Add $1.66 for other items of cost.

MONTREAL.

This city with the majority of Eastern Canadian centres passed through a very trying time last winter and there were claims and rumours of excessive charging by dealers. Coal prices at Montreal for purchases in the ordinary way should have averaged not a cent more than in Ottawa where they held firm at $9 per ton throughout the season, on coal sold by the majority of firms who buy from the large producers, from whom as before mentioned 90 per cent of all anthracite consumed is purchased. The freight rate to Ottawa is 28 cents per ton more than to Montreal, but disregarding this difference on account of higher delivery charges at Montreal comparison with Ottawa prices will be fair. Admitting that the conditions of handling were abnormal, as claimed by a great many dealers, and that many Montreal dealers do not import but buy from Montreal wholesalers at an advance upon actual cost, and owing to excessive delivery charges, etc., surely 50 cents or $1 more per ton would have amply taken care of these extra costs, making the outside selling price $10, which in all reason should have been the maximum figure. To prove that this latter price was ample note that some dealers kept within this limit. If this figure was exceeded, and, as alleged, prices all the way up to $15 per ton in ton lots delivered were asked, and as high as $20 in smaller lots, these figures indicate pure and simple extortion on the part of dealers, whom the civic authorities if they had the evidence to support their assertions, might promptly have prosecuted. But I understand that some of the poorer classes in Montreal buy from peddlers and corner stores in very small quantities such as 10-pound bags. It may be that the alleged charge per ton has been calculated in some instances upon the basis of these smaller sales. If so, the calculation is unfair. It is very questionable on account of the extra cost of handling, bagging and delivering such small lots whether there is more profit in sales made in this way at the rate of $20 per ton than in whole ton sales at $10 or $12. Such shops and peddlers are absolutely necessary in the poorer districts of large cities, for, regrettable as it is, many of the very poor are only able to buy coal in the most expensive manner—in minute quantities. Further, I have to admit that there have no doubt been some cases where very high figures could be justified. For example, dealers who were required to deliver coal at no matter what price, were forced (by reason of not being able to obtain additional supplies from reliable producers at circular prices) to purchase from independent or "outlaw" companies at very high prices indeed. This condition developed at one stage in nearly every city, but such necessity of purchasing new supplies in a hurry was rare and did not affect the general situation to any great extent.

April prices were fair at about $9.50 for coal costing about $6.35 f.o.b. Montreal. Add about $1.95 for operating and delivery costs. Note that these prices are those of the largest dealers, who resell the bulk of their importations to other Montreal and other dealers at a reduction from retail prices. The cost to such other dealers would be about 40 or 50 cents per ton higher. Many Montreal dealers do not import their coal. Montreal wholesalers, when selling at retail, are evidently accustomed to fix their prices so as to allow ordinary retailers an opportunity to sell at a profit. This condition probably tends towards higher prices than in cities where all dealers import direct.

OTTAWA, ONT.

While conditions looked dark for a time in this city there was no actual famine owing largely to judicious handling and distribution of stocks by the dealers at critical times.

The prices held firm at $9 per ton throughout the winter and $9.50 in half lots. These prices were still being quoted in April and are quite reasonable. The coal costs about $6.60 per ton f.o.b. Ottawa. Add $1.62 for operating and delivery costs.

KINGSTON, ONT.

As mentioned under this city's heading when formerly quoting costs and selling prices, Kingston coal dealers (as well as the dealers at other ports on the upper St. Lawrence and lake Ontario) import a full year's supply during the season of lake navigation. This is done because water freights cost much less than all rail. As previously stated a coal famine attended by excessive prices is not likely in the mentioned cities and towns. All through last winter Kingston had plenty of coal at normal prices.

The average prices prevailing during last winter season were $7.75 to $8.25 or on an average $8. April prices ran from $8.25 to $8.50 for coal now temporarily costing about $6.75 f.o.b. Kingston. Add $1.70 for operating and delivery expenses.

Western Ontario.

TORONTO.

Toronto suffered to a greater extent from the abnormal conditions of last winter than most of the smaller cities in Ontario for the same reasons already explained when referring to Montreal. A large population required a vast tonnage to answer its wants. There was a lack of sufficient coal to comfortably take care of requirements and a condition of actual famine was narrowly averted by the extraordinary exertions of the coal dealers individually and through the local Ontario Coal section of the Retailers Association. The civic government, too, did its part. In the result the prices to consumers rose but little above normal and no advantage was taken to enhance prices. These statements apply to the general run of dealers. While no cases have come to my notice, I do not doubt that there were some exceptions, as there are always some concerns in every community which are ready to take any advantage, fair or otherwise, in order to benefit themselves. I am certain, however, that there was very little of this sort of thing in Toronto.

Also as has been the case all along the line, a certain percentage of requirements during the winter were purchased at higher than circular prices. The large producers not being able to fill orders it became necessary to resort to the independents. These commanded higher prices and the coal thus acquired when not used to fill contracts at a loss was necessarily resold to casual purchasers at a reasonable advance.

The prevailing average selling prices during the winter were from $8.50 to $9.50, striking a fair average at $9. A straight price of $9 prevailed in April. The coal averaged in cost all around about $6.60 f.o.b. Toronto. Add $1.87 for operating and delivery costs. In Toronto, as in Montreal, many dealers buy from wholesalers, and do not import direct. The wholesalers' cost would be about 50 cents per ton less.

HAMILTON.

The same abnormal state of affairs was general last winter in Hamilton as elsewhere east of the Great Lakes and need not again be specially mentioned except in connection with any special local circumstances. Previous references as to supplementary supplies purchased through independents with resultant higher prices to consumers as noted under Toronto can be applied to all other cities.

In Hamilton the general selling prices, considering conditions, were claimed to be slightly above normal. So far as returns to this department are concerned no exception could be taken to the prices charged during the winter. The prevailing price dur-

ing the early winter, that is up to the early part of January, was $8.50 per ton. In January a minimum advance of 50 cents per ton was made by most dealers, who when questioned as to the necessity of this increase replied that they were forced to make a higher charge because only about 60 per cent of their contracts at circular prices having been filled they were obliged to go into the open market for the balance which necessarily cost them a great deal more. This has been the main reason for higher prices in 90 per cent of cases. By way of emphasis I subjoin a quotation from a report of one of the principal firms in Hamilton:—

"JANUARY 29, 1917.

"We advanced our price 50 cents per ton on the 19th on anthracite. The advance is only to transient trade, however, of which we have very little, and we have in very many instances had to refuse deliveries even at the advanced prices in order to protect our regular customers to whom we are delivering at the prices originally contracted for. The mines that supply us have only been able to give us about 60 per cent of our requirements and we have been compelled to buy in the open market at greatly advanced price, and we should be charging considerably more for the coal in order to break even. For November and December our loss was an average of 47 cents per ton. We would be very much surprised to hear of any such thing as a profit in the coal business in Hamilton this year, at least."

The average price during April was $8.50 per ton, for coal costing about $5.85 on an average. Add $1.64 for operating and delivery costs.

ST. CATHARINES.

Late fall and early winter prices were $8 to $8.25. From January and right through to April the selling prices were $8.25 to $8.50. The price for April was $8.50 flat for coal costing about $5.80 f.o.b. St. Catharines. Add $1.53 for operating and delivery expenses. An increase in January was due to an advance in the cost price and a shortage, necessitating making of deliveries in quarter and half ton lots.

LONDON.

The average winter selling prices were $8.50 to $9. The April prices have been $8.75 to $9, the coal costs about $6.30 f.o.b. London. Add $1.63 for operating and delivery expenses.

ST. THOMAS.

The winter selling prices were the same as those of London. The April price has been $8.75 flat for coal costing normally about $6.30 f.o.b. St. Thomas. Add $1.60 for operating and delivery expenses.

BRANTFORD.

Selling prices in the late fall and early winter were $8.25 to $8.50. During midwinter when the shortage was acute as high as $9 price prevailed.

The average selling price for April was $8.50 for coal costing $6.10 f.o.b. Brantford. Add $1.60 for operating and delivery expenses.

PETERBOROUGH.

The average selling prices during the early winter were $8.50 to $8.75 per ton. In midwinter and during the shortage period up to $9.50 was charged. The April price was $9 for coal averaging in cost $6.50 f.o.b., Peterborough. Add $1.60 for operating and delivery expenses.

The selling prices in other western Ontario cities and towns average about the same as in the immediately above-mentioned centres.

Northern Ontario.

NORTH BAY.

The selling prices during the early winter were $9 to $9.50, and ran as high as $10.25 during midwinter when the shortage became acute.

The April selling price was $9.25 for coal costing about $7.10. Add $1.55 for operating and delivery expenses.

SUDBURY AND COPPER CLIFF.

Costs here are considerably more than at North Bay on account of about 80 cents per short ton higher freight.

The selling prices in December last were $9.50 to $10.50. During midwinter owing to the difficulty of getting supplies and dealers having to pay as high as $11 laid down in coal yard, prices ran as high as $12.

The April selling price was $11 for coal costing about $8.25. Add $1.58 for operating and delivery expenses.

SAULT STE. MARIE.

Owing to the fact of the "Soo" being a lake port and the bulk of coal consumed being freighted during the season of lake navigation and stored to take care of winter business, no abnormal conditions affecting all-rail centres were felt there, prices remaining normal for the past season at $9 to $9.50 per net ton delivered. The price in April was $9.50 for coal costing, everything considered, $8.50.

The following, quoted from a communication received from one of the leading coal dealers of Sault Ste. Marie under date of March 5, regarding this year's outlook, will be of interest:—

> "Regarding the future situation you may look for a decided increase in the cost of coal within the coming year. The operators at the mines are asking more but will not contract for any quantity in particular. The steamers are asking 75 cents to $1 per ton freight, according to the despatch they are guaranteed. We are paying $3 per day for the common labourer, where in 1914 we could get all we required at $1.75. I expect the conditions will force the price of anthracite coal up to $9.50 to $10 per ton."

WEST OF GREAT LAKES.

As already mentioned, entirely different conditions govern the anthracite coal situation at Port Arthur and Fort William and west than those operating in Eastern Canada, because the year's supply has to be brought in during the season of lake navigation. This enables that part of the country to avoid any such crisis as was experienced in the East during the past winter both as to shortage and high prices. Under such conditions the selling prices from last fall up to April remained normal and fair with relation to cost. They averaged as follows:—

> *Port Arthur and Fort William,* $9 to $9.50 (the April price was $9.50 for coal the gross cost of which was about $8.75). *Winnipeg,* $11.25 (the April price was the same for coal, the gross cost of which was about $10.75).
>
> *Brandon,* $12.25 to $12.50 and in some cases as high as $13 (the April prices were $12.75 to $13.25 for coal the gross cost of which was about $12.20).
>
> *Regina,* $13.75 to $14 (the April price was $14 for coal the gross cost of which was about $13.10).

From Brandon west, Pennsylvania anthracite is not used to any great extent owing to the high costs as against Western domestic lignites and bituminous coal. See comparative figures for Brandon and Regina. It is only a question of time when the

exportation and storing of large quantities at the head of the lakes will be at least greatly curtailed because of enhanced cost prices, and the difficulty in securing sufficient tonnage. This will be felt to a large extent this season, from present indications, as eastern dealers are having more trouble than ever before in getting their orders filled. The outcome will be that western coal will gradually capture the whole of the market west of lake Superior.

It can hardly have escaped observation that rates for the months of April show in most cases a larger than ordinary profit. This enhanced profit appears in every case of a purchase made by a coal dealer during that month through the regular channel—the larger operators. On April 1, as already stated, a reduction of 50 cents per ton from "circular prices" goes into effect. In the ordinary course the retail dealers give the benefit of this spring reduction to the consumer, raising their prices ten cents or so per month as the amount of the premium allowed by the coal operators is automatically reduced throughout the summer. The dealers did not reduce their prices during April of this year and hence the profits of many of them for that month were considerably augmented. Upon investigating and inquiring the cause I discovered that because of the uncertainty of the market and difficulty of securing supplies their actual deliveries of coal were running so much below the normal that the apparently greater profit, viewing it on a one-ton basis, was non-existent when considered with reference to the total volume of profits earned in April, 1917, as compared with those earned in the same month of previous years. The dealers considered (and I cannot, upon a sound sense or a sound business basis bring myself to disagree with them) that they were entitled to earn, from such reduced amount of business as the existing conditions enabled them to do, a sufficient profit to carry them through the period of such conditions, more especially because they were, at the time in question, anticipating an advance in both the "circular" cost of coal and in freight rates. The first-mentioned advance has in fact eventuated and the second is on the way. Yet further advances are expected. As to most of the extra profit mentioned it was earned during April only. On the 1st of May a general advance of 30 cents per ton was made in the circular price. On the same date the premium off the circular price in the ordinary course dropped 10 cents. Thus the April excess profit of 50 cents became, in May, but 10 cents. On June 1 this 10 cents will be wiped out by the ordinary monthly reduction of premium. On this same date I have reason to believe that the United States railway carriers of anthracite will advance freight rates 25 cents per ton. Accordingly June purchases will cost the Canadian coal dealer (even he who is able to purchase on the best possible terms) 25 cents more than the March or winter prices. This is a most unusual situation and one of which the consumer ought to be apprised, because, although the Canadian coal dealer is very likely to be held responsible for the higher prices which his higher costs will make inevitable, the operative causes of such higher prices will have had their origin outside of Canada and he will have been utterly powerless to prevent or to control either them or their results. In July the coal per ton will cost the dealer 10 cents higher still, and the same rate of increase will be registered for both August and September. Thus, unless in the very improbable event of a special reduction from "circular" prices, before next fall, anthracite coal will be costing the retail dealer next winter 55 cents more per ton than it cost him last winter, assuming a purchase in both cases on the best possible terms. There is a lesson to be learned right here but I shall not recite it again.

Meanwhile, the prices of retailers generally have ruled for May about the same as those for April. The situation in the Maritime Provinces is not improving. Coal has declined slightly but ocean freights have advanced. Schooner freights from New York to Halifax are now $5.50 per ton, and even higher figures are being demanded.

SECTION IV.

General Conditions Affecting the Anthracite Coal Business in Canada.

The conditions existing during the winter of 1916-17 are said to have been the worst ever experienced. Various reasons have been advanced to account for an abnormal shortage which very nearly resulted in an actual famine. Considerable hardship and inconvenience was experienced in nearly every district. It is my purpose to state now what I consider to have been the chief causes contributing to such conditions. My statements are the result of personal investigation and inquiry.

(1) The long and extremely severe winter most certainly was one cause. More than the ordinary amount of coal was required and consumed during protracted periods of extremely low temperature.

(2) The supply of mine labour in the anthracite region was not sufficient to meet the 1916-17 demand. The great majority of the mine workers being European foreigners, some 30,000 or 40,000 of them had, in course of time, answered calls to their colours. When an extraordinary demand for anthracite arose during 1916-17 the labour was unavailable to overtake the excess demand. Extraordinary exertion prevented any great falling-off from the 1915 production. A large surplus from the year 1915 more than made up for a slightly reduced production, but in the result there was not enough coal mined to meet all demands as made. This condition affected prices as well as the supply. There had been supposedly visible during the spring of 1916 a tremendous surplus of stock for disposal during the then coming summer. Much publicity was given to this fact through the press of the Eastern States, and consumers were advised to stock up and take advantage of the summer discounts. The advertising was for the purpose of ensuring the sale of an expected excess production. In that season domestic sizes are usually in excess of the demand. Many United States consumers and some in Canada had followed the advice to lay in their supplies in advance. If the large consumers in this country had done likewise, thus giving the dealers a chance to stock up for the winter demand, a great deal, if not all of the shortage experienced, with incident higher prices, would have been avoided. But they did not. This excessive buying considerably depleted the stocks of dealers, who later, when the shortage developed, were unable to meet the demands of those consumers who from various causes such as lack of foresight, cash or storage capacity, had failed to provide themselves with coal in time. An unexpected shortage had developed affecting bituminous coal, which is largely used for manufacturing purposes. Manufacturers who were unable to procure bituminous were driven to order anthracite instead. A shortage of labour at many coke ovens had reduced the supply of coke and driven into the anthracite market some manufacturers who ordinarily used coke. Reduction of coking operations afforded some relief to the demand for bituminous coal but not enough. Ordinary users of both bituminous coal and coke were consuming large quantities of anthracite instead. The new users of anthracite as a fuel for industrial purposes began to realize the greater value of it as a steam producer, and there arose a very active demand by them therefor, so great a demand, indeed, that the supply ran far short of the requirements, dealers could not secure deliveries, and consumers who had been accustomed to using the small sizes were compelled in a great many cases to resort to the higher priced of the domestic sizes. To this last mentioned cause may be attributed to a large extent the recent shortage of domestic sizes of anthracite in Canada. With these conditions existing transportation failed and production had to be restrained.

(3) Transportation shortage as I believe had most to do with the conditions so far as Quebec and Ontario were concerned. The failure or partial failure of the rail-

way companies to adequately meet the coal situation was I think the main cause of the shortage. With transportation available coal could have been had. I must admit that these companies were handicapped more than ordinarily by reason of right of way orders given for the prompt handling of a greatly increased traffic in munitions and war material, and that United States railway lines in the east were badly congested late in the season because ocean transportation was unavailable on the Atlantic seaboard by reason of the unrestricted submarine activities of the enemy which had caused a "tie-up" of an enormous amount of railway freight equipment including motive power; but, notwithstanding all these things I believe responsibility for the conditions in Ontario and Quebec rests partially at least with the railways. The motive power on one of our Canadian systems particularly was sadly deficient and was responsible for much delay at the Canadian frontier where the interchange of traffic is made. As a direct consequence of such delay embargoes were placed on coal for Canadian points by American lines. This action naturally resulted in the unnecessary tying up of much coal equipment and the delaying of the return of empties to the mines for reloading. Distribution was restricted at a time when every last pound was needed and in demand. One of the excuses given was that extremely low temperature and heavy snow storms had blocked up the yards and prevented the schedule handling of freight trains, but those are not uncommon winter conditions in Canada, and it seems that if sufficient and powerful enough motive power had been available this difficulty could have been very greatly minimized and perhaps entirely overcome.

HOW TO PROVIDE AGAINST A REPETITION OF SUCH A CRISIS.

It is more important, however, to provide, if it can be done, against a repetition of last winter's conditions than it is to fix responsibility for them. Superficially the problem of providing against a winter coal famine presents no great difficulty. "Simply ship in enough coal during the spring and summer months when the coal can be more easily handled by the railways and when a sufficient output is available at the mines." This undoubtedly can be done. Abundant stocks are available under ordinary conditions. But, who is to do the buying, the paying and the storing? The coal dealers? If they could, and no doubt they would, provided they could finance such a large undertaking, secure sufficient storage, and see a fair return in the operation, the problem would be solved. But, the suggested superficially simple solution is really out of the question, for under existing conditions it would be impossible for the dealers, excepting a few large concerns, to attempt to lay in anywhere a sufficient surplus stock early in the season for delivery and sale from six to eight months later. Lack of capital and insufficient storage room would prevent. It must be borne in mind that the purchase of coal from producers is practically cash business, monthly settlements being required. The coal dealers as a class simply cannot shoulder this responsibility.

It may not be generally known that while the dealers are able to contract with the large producers or sales companies for their supplies of coal for future deliveries, no prices or tonnage are guaranteed or protected. Here are the terms of purchase:—

> "All prices being subject to change without notice and all sales subject to circular price in force at time of shipment without regard to date that orders are entered."

The following copy of a notice sent out to their customers by a large sales company at the time of the last advance in prices, affords an illustration of the operation of such terms as between producers and dealers:—

> "Prices in various sizes of coal will be advanced on March 1. If we have any unfilled orders on your account that we are not free to ship at March prices, please advise us at once to cancel."

It will thus be seen that coal dealers are only sure of the cost price of such coal as is in their immediate possession or en route, they having no protection whatever on so called contracts. They have to pay the prevailing circular price in all cases. On the other hand dealers are expected to enter and actually do enter into contracts with individuals, companies, and municipal corporations for future deliveries at the prices in force on the date that the contract is entered into. This one-sided arrangement does not look like good business. Indeed it is not good business on the part of the dealers, for they are pledging themselves to make future deliveries at figures which, taking the past season's advances in cost at the mines plus the extra high handling and delivery charges as an example, may wipe out any profit on the contract or, as has actually happened in quite a number of cases disclosed during my investigations, the coal may have to be delivered at a loss.

This one-sided contract system is said to be a relic of the days when contracts for future deliveries at set prices could be entered into by dealers with producers. When the conditions changed, the dealers, from various causes, such as keen competition and fear of losing business, failed to change their method of dealing with the public. This is the dealers' own lookout and the consumer cannot be blamed for taking advantage of such contract system provided always that under it he can be sure of getting deliveries. The events of the past winter have shown that deliveries cannot always be depended upon. A dealer may figure upon and order certain quantities for delivery throughout the summer, fall and winter months so that he may be ready to fill his contracts with his customers and as well handle current business. Then owing to a shortage say that only 60 to 75 per cent of the quantity ordered is received, which has been a fair average, locally, for the past season, then all are practically in the same boat, for, contract or no contract, if there is not enough coal available or en route for delivery the consumer has to go without. The retail coal dealer's customers may be divided into three classes.

1. Contractees, embracing large users such as manufacturers, proprietors of wholesale houses, owners of office buildings and some householders, municipalities, etc.
2. Regular seasonal buyers, such as householders, who purchase not under contract, and
3. The small buyer of ton or half-ton lots at a time.

These buyers are naturally taken care of in the order named. The dealer is bound to perform his contracts, so that the buyer who is really paying the lowest price for his coal is the one whose needs are first filled, the regular customers come next in order, and the buyer whose financial circumstances do not enable him to bargain for or to provide a stock ahead has to take his chances last, paying the highest prices and standing the poorest chance, in case of shortage, of being supplied at all.

So much for the conditions. What is the remedy? It is conceded that the only sure way of having enough is to get in enough during the spring, summer and early fall to last through the following winter and spring. What is the best way of doing this? What stands in the way of its being done? The chief obstacle in the way of doing it is the selling by contract system. This is the one week point in the armour of the dealers. They are carrying such a financial risk for the benefit of contractees that they dare not assume the burden of the further financing necessary to the increases of their actual stocks. They could obtain instant relief from this burden if they should refuse to enter into contracts for future deliveries except on the terms and at the prices in force at the time of such deliveries. These are the conditions imposed upon them by the producers. An immediate result would be that the large users, who are in a position to purchase, and who do purchase in large quantities at the lowest figures, will buy and pay for, and get their stocks in and stored during the season

when such low prices are in force. Being financially able to do so, they will as a matter of business take advantage of the best terms. This course would care for and dispose of the larger percentage of the coal imported each year, and as I am advised by many dealers consulted would solve the difficulty. It has one striking advantage,—it puts the solution up to those financially able to bear it. The smaller householder could, under these conditions, and I am assured that he would, be very well taken care of. The dealers would have the cash to buy, the storage to spare and would be free of the risk and loss incident to the contract selling system, one but slightly different from pure gambling, so far as the dealer is concerned. Another and important point in the same connection is that, under the suggested changed system of selling, cheaper coal would be available for the small consumer who can afford the expense. By far the greater tonnage of coal requirements would be brought in during the late spring and summer when costs are at the minimum, and stocked for winter sales, instead of as at present, the greater quantities being now imported during the season when mine prices and cost of handling are at their maximum.

RESTRICTION OF CONSUMPTION AND SAVING.

I wonder whether in these days, when saving is no longer out of fashion, a word concerning possible economics in the use of coal would be considered fitting for inclusion within such a document as this.

If steam and furnace heating of households could be started two weeks later and discontinued two weeks earlier than is customary it would mean a month subtracted from the period of consumption and a saving per household of an average of about a ton and a half of coal, at times when household heating is not a vital necessity. With coal at $9 per ton the saving per household in money would be $13.50. To the nation the aggregate saving would amount to an immense sum. It would cause no hardship and but slight, if any, discomfort. Its results in all probability would be beneficial to health. The practice of commencing the heating of dwellings early in the fall and continuing such heating almost until summer, is of comparatively recent institution. It is one of a number of luxurious and extravagant habits of our age. The suggested economy might mean the saving of just the quantity of fuel that might be needed to relieve some mid-winter coal crisis at a time when the temperature might be hovering around "twenty below."

Another important saving might be brought about by conserving and making the best use of the supply—by more careful and intelligent operation of the heating units. It is said that about ten per cent of all coal burned is wasted through ignorant or careless handling of furnaces and stoves. The waste may occur in many ways. Non-regulation of fires to the weather conditions is probably the most common. The fires are allowed to burn too freely in the milder weather and late at night when all are sleeping and would be the better for much less heat. By careless shaking, a lot of good fuel is allowed to escape with the ashes, which are but slightly sifted if at all, and from which a very slight percentage of recovery is made. If the waste referred to in fact amounts to 10 per cent consider what this means to a city like Ottawa, for instance, with coal at $9 per ton. The yearly consumption of that city is in round figures 140,000 tons. The saving would amount to $126,000 per year. Adding to this possible extra saving that which would ensue if a month were off the season of consumption which would mean something like an additional $200,000, we reach a total of $326,000. The saving for all Canada would exceed $8,000,000. This surely would be worth while.

Wholesalers, Pedlars, Accounting Systems, etc.

WHOLESALERS.

In the larger cities there are a number of companies who carry on an altogether wholesale business or a combined wholesale and retail trade. They import large quantities and supply and distribute to smaller dealers in their home cities either in car-

load lots or less, also to dealers in other smaller communities. The average profit made in this business is about 25 cents per ton in carlots, although as low as 5 cents to 10 cents per ton is very often the figure. On less than carlots as high as 50 cents per ton is accounted and is a fair profit. This additional cost to a great many dealers does not generally affect the current selling prices they being in the majority of cases under less expense than the larger concerns, the difference in their overhead, fixed and delivery charges about averaging up the general costs. The wholesaler fills an important and invaluable place in the coal trade for the principal reason that his large purchases at the lowest market prices guarantee the importation of a large percentage of the tonnage brought into Canada and to a very great extent prevent the enhanced selling prices which would rule if only the smaller dealers imported. As these could only afford and would only need to purchase and contract for small supplies at a time, and as their requirements demanded, they would be very often forced to go into the open market and to deal with the so called "independents" especially in the event of the existence of such conditions as we have just passed through; if indeed the conditions referred to are yet at an end.

PEDLARS.

The coal pedlar trades altogether with the poorer people and buys in very small lots from the wholesaler, hawking or peddling the coal through the poorer sections of the larger cities. Such dealers supply the wants of a section of the population who otherwise would find it extremely difficult to get the very small quantities which their means and the existence of this class of dealer enable.

ACCOUNTING AND COSTS SYSTEMS.

A far too common lack in the great majority of other lines of trade is evidenced among coal dealers as well. Up-to-date methods of accounting and of ascertaining costs are most rare even with the very largest of firms. It is becoming better recognized year by year that to safely and intelligently conduct any business it is absolutely essential that correct cost figures be worked out. Otherwise a business can be likened to a ship without a rudder. It is liable to drift upon the rocks of insolvency at any time.

A few pertinent remarks in this regard as made in an address before the National Foreign Trade Council of the United States in January of this year by Mr. Edward N. Hurley, until recently chairman of the Federal Trade Commission follow:—

> "It is a fact well understood among business men that the general demoralization in a large number of industries has been caused by firms who cut prices not knowing what their goods actually cost them."
>
> "The cost of selling which is equally important is often almost wholly lost sight of."
>
> "The man who does not know his true costs is the man who prices his goods foolishly and thereby impairs the business of his sound competitors at the same time that he ruins his own."
>
> "Too low price making based on guess work or on partial costs is a menace to sound business."

In a previous report I have quite plainly expressed and elaborated an opinion which I now repeat—that selling below cost whether as the result of deliberation or of accident under such circumstances as to result in business failure, produces not a gain, but instead a loss to the ordinary customer, upon whom in the last analysis all business losses fall to be made up and recouped. Paradoxical as it may seem, I believe that I state an economically sound proposition when I claim as I do, that

selling below cost is often a potent and patent cause of high prices. The competitor who through carelessness or ignorance induces his own removal from the field of competition leaves it free of the restraining influences which his continued presence in it afforded. Wherefore it is to the consumer's interest that all competitors should earn such fair profit as may enable them to survive and to compete. The public is quite reasonable. It does not insist upon purchasing below cost. It wants to know, it wants to be sure, just what the real costs of the various essential commodities are, and it is willing to pay such fair and reasonable profits as will enable business to be carried on. But as I believe it has no patience with the merchant or manufacturer who does not know what his costs are. Such a one in his ignorance is as likely to overcharge as to undercharge. He is a menace as much to himself as to the consumer. His presence in business does not conduce to the health thereof. Once upon a time, it was before I commenced these investigations into the cost of living, (which have enabled me to become closely familiar with the inside workings of many business houses) I used to wonder why such a large proportion of seemingly capable business men came to grief as such. I think that now I know. They did not know their costs. They supposed that they were making profits when they were not. They were carrying unprofitable lines but they did not know it. They were victims of dishonesty but they did not know it. Perhaps they were too "economical" to incur the expense of instituting a proper costs accounting system, and so, in saving the expense they sacrificed themselves and their creditors.

I have found in connection with the returns upon which this report is based that the securing of anything like correct costs, so far as overhead, fixed, and delivery charges were concerned was almost impossible. For a while I nearly despaired. The great majority of the records furnished at first were quite evidently mere estimates, in some cases wild guesses. With some assistance, however, most dealers were enabled to make a fair computation and by comparing results by localities I was enabled to reach what I believe to be approximately correct results, being those shown in section II of this report.

I would strongly recommend that the majority of the coal trade go thoroughly into this phase of their businesses and install up-to-date accounting and cost methods even at some expense, for such action will surely lead to a saving in the end, through the stoppage of leakages and the suggestion of economies, perhaps indeed the forestalling of financial wreck.

THE PRESENT CONDITIONS AND THE FUTURE OUTLOOK.

The existing conditions are extremely uncertain. Prices have not been much reduced. The normal prices of the past winter still prevail. This unusual spring condition is due to the fact that very little coal has been available and cost prices are uncertain owing to an anticipated increase of miners' wages entailing a further advance in coal costs at the mines. An increase in freight rates is said to be imminent. If these advances eventuate they mean higher prices for coal.

The outlook for the coming season therefore, is not of the brightest and, unless a great change takes place, it is going to be extremely difficult to obtain anything like a sufficient quantity of coal to care for all wants. If the mines are worked at top speed with no strikes or other troubles, throughout the summer months, a very substantial extra tonnage will be produced. So much for that, but it will be necessary for transportation conditions to improve as well. Coal at the mines, no matter in what quantity, is of no use unless it can be expeditiously moved. Lack of transportation was the principal cause of the coal shortage of last winter. Unless an immediate and general improvement takes place it will operate against the possibility of our receiving and storing sufficient supplies for next winter's needs. Given transportation facilities

there is only one sure way, as before stated, of providing against a shortage during next winter, and that is to stock ahead. The public have been warned and to a great extent are taking the advice given them: the coal dealers are alive to the situation and are doing everything in their power to help out, but how can the dealers or the householder and other consumers, stock up if the coal is not coming in?

I understand that even at the present time several American railroads have embargoes against coal shipments to Canada, not on account of congestion so much as because of a desire to have all possible equipment on hand in case of any emergency. There is known to be a general car shortage in the States and embargoes have been placed by many roads so that they may be in the best possible shape to expedite the movement of war supplies. This is an extraordinary condition caused by the entrance of the United States into the war.

I respectfully suggest that a strong effort should be made at once to remedy these embargo conditions. Some action should be taken too, in my judgment to ensure better coal transportation service by Canadian railway lines. As elsewhere in this report stated, for much of the trouble of last winter one or two of our Canadian railway lines were responsible, their motive power and other facilities having proven entirely inadequate. If there is no improvement ere this coming winter my belief is that the conditions of last winter will re-occur with accentuation. I regard the impending situation with great concern and cannot too impressively state it. I believe that plenty of coal will be available, but I believe that official or government action will be necessary to ensure sufficient transportation therefor.

I feel that it would be improper to attach my name to this report without acknowledgment of the fact that it is in great part the product of the skill of Mr. J. C. Imlay, presently of the Cost of Living staff of the Labour Department. The tabulations of costs throughout are entirely his.

[192]

RETURN

FUEL CONTROLLER.

TUESDAY, June 12, 1917.

The Committee of the Privy Council have had before them a report dated 8th June, 1917, from the Minister of Trade and Commerce, submitting the following observations on the coal situation in Canada:—

Last winter very considerable difficulty and hardship were experienced owing to shortage of supplies and congestion of transport, resulting in increased prices to consumers, serious temporary curtailment of production in factories, and much discomfort and privation in the homes of the poorer classes in towns and cities. These causes bid fair to continue and with increasing force during the present season, and are added to by the scarcity of labour for the mines, the increasing difficulties in transport, and the added demand for coal in both the United States and Canada owing to the ever-increasing exigencies of the war.

At the present moment the outlook for the coming season gives cause for grave anxiety and calls for prompt and efficient action if subsequent shortage and its consequent privations are to be avoided. The Quebec district, which formerly drew for its needs for railways and factories, some 2,000,000 tons of bituminous coal from Nova Scotia mines, cannot estimate on more than 200,000 tons from that source. Nearly all the prospective output of these mines will be required for local needs, bunkering purposes and the use of the Intercolonial railway. This transfers the supply of this deficiency to United States mines, whilst in Middle Canada the demands have to be met, if at all, by drawing upon United States sources.

Here two difficulties are encountered. First the high price and shortage of supply in the United States mines, caused by extraordinary demands and reduced output owing to scarcity of labour. The entrance of the United States into the war and the vast preparations necessary for the equipment of sea and land forces and the growing needs of the Allies call for vastly increased output of coal and added restraint of export for other than war purposes. In the second place transport by land and water is daily becoming more inadequate compared to the increasing volume of freights to be moved, and freight costs are continually increasing.

In the western Prairie Provinces the supply has been diminished by strikes in some of the mines and in respect to those working the output is restricted by the tendency to neglect putting in orders during the summer season, and consequent failure to haul coal to consuming centres during the slack and favourable season.

The Minister represents that it seems, therefore, to be necessary that a competent fuel controller should be appointed:—

1. To examine into the coal situation of Eastern and Middle Canada from the Atlantic coast to the Rockies.

(*a*) As to the probable demands for consumption therein for the coming season.

(*b*) As to the output of Canadian coal that can be relied upon towards meeting those demands and what, if any, measures can be adopted to increase this output.

(*c*) As to the sources outside of Canada from which the deficiency can be provided, and the possibility of obtaining the necessary amount,

(*d*) As to the possibility of providing sufficient transport for the carriage of both Canadian and foreign coal from the points of production to the distributing points.

(*e*) As to the possibility of early and continuous co-operation between producers, carriers and consumers, with a view to economizing and facilitating the needed supply.

2. That in the course of and in connection with such investigation, he be authorized to confer with and co-ordinate the different interests with a view to ensure so far as possible a sufficient supply of coal for Canadian requirements during the approaching autumn and winter season and from time to time to report and recommend to the Government ways and means for effecting the same.

The Minister recommends that Charles A. Magrath be appointed Fuel Controller and be charged with carrying out the purposes outlined in the foregoing memorandum, and that all expenses incurred by him for clerical assistance and travelling and living expenses in connection therewith constitute a charge upon and be paid from the War Appropriation Funds.

The Committee concur in the foregoing and submit the same for approval.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

ORDER IN COUNCIL APPOINTING FOOD CONTROLLER FOR CANADA.

[192a.]

P.C. 1460.

AT THE GOVERNMENT HOUSE AT OTTAWA.

SATURDAY the 16th day of June, 1917.

PRESENT:

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

His Excellency the Governor General in Council under and in virtue of the provisions of the War Measures Act, 1914, is pleased to make the following orders and the same are hereby made and enacted as follows:

1. The Governor General in Council may appoint an officer to be known as Food Controller for Canada who shall hold office during His Majesty's pleasure.

2. It shall be within the power of and it shall be the duty of the Food Controller:—

(*a*) To make such inquiry and investigation as he deems necessary for the purposes hereinafter set forth into the quantities, location and ownership, and into the sources of supply of any article of food used by the people of Canada and into the prices at which same is sold or held for sale and the causes of such prices.

(*b*) To ascertain the food requirements of Canada and to facilitate the export of the surplus to Great Britain and her Allies.

(*c*) To make regulations where he deems it in the public interest and subject to the approval of the Governor in Council.

(1) Governing the prices of any article of food and the storage, distribution, sale and delivery thereof.

(2) Providing for the conservation of food and the prevention of waste thereof and governing the consumption of food in hotel, restaurants, cafes, private houses, clubs and other places.

(3) Respecting the manufacture, preparation, storage and transport of food.

(4) Authorizing the Food Controller to purchase, requisition, store, sell and deliver food.

3. For all the purposes of these orders the Food Controller shall have the powers of a Commissioner appointed under the provisions of Part One of the Inquiries Act.

4. All powers conferred and all duties imposed on the Food Controller by these Orders or by any subsequent Order of the Governor in Council may be exercised and performed by him either independently or in co-operation with any Department of

the Government of Canada, or any Provincial Government, or with any department or officer of the Government of Great Britain or of any Allied country vested with similar powers.

5. The salary of the Food Controller shall be such as may from time to time be prescribed by the Governor in Council.

6. (*a*) The Governor in Council may, upon the recommendation of the Food Controller, appoint such officers, clerks, and other persons as may be deemed necessary to assist the Food Controller in the performance of his duties, who shall receive such remuneration as may be approved by the Governor in Council upon the recommendation of the Food Controller.

(*b*) All expenses lawfully incurred under these Orders shall be payable out of the moneys provided by the War Appropriation Act, 1917, and any subsequent war appropriation voted by Parliament.

7. The powers and duties hereby conferred and imposed upon the Food Controller shall not include or interfere with the powers and duties vested in the Board of Grain Supervisors for Canada established by Order in Council approved on the 11th day of June, 1917.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

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RETURN

11th June, 1917.

BOARD OF GRAIN SUPERVISORS.

The Committee of the Privy Council on the recommendation of the Minister of Trade and Commerce advise that the following persons be appointed members of the Board of Grain Supervisors for Canada, the appointment of which Board was authorized by Order in Council of 5th January, 1917, the first named to be chairman:—

Robert Hagill of Winnipeg, Man.
H. W. Wood of Carstairs, Alberta.
Samuel J. Rathwell of Moosejaw, Sask.
Thomas A. Crerar of Winnipeg, Man.
William L. Best of Ottawa, Ont.
John Charlie Gage of Winnipeg, Man.
William A. Bawlf of Winnipeg, Man.
William A. Matheson of Winnipeg, Man.
Lionel Clarke of Toronto, Ont.
Joseph Ainey of Montreal, Que., and
James Stewart of Winnipeg, Man.

The Committee further advise on the same recommendation that until the Board shall otherwise determine, seven members of the said Board shall constitute a quorum.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

P.C. 1604

AT THE GOVERNMENT HOUSE AT OTTAWA,

Monday, the 11th day of June, 1917.

PRESENT:

His Excellency the Governor General in Council.

Whereas, by reason of war conditions, it is considered necessary to provide means whereby the grain of Canada in excess of domestic requirements may be made available for purchase by or on behalf of His Majesty's Government of the United Kingdom and of the Allied Powers, and that the distribution of domestic requirements be controlled in such manner and under such conditions as will prevent to the utmost possible extent any undue inflation or depreciation of values by speculation, by the hoarding of grain supplies, or by any other means.

Therefore His Excellency the Governor General in Council, under and by virtue of the provisions of the War Measures Act, 1914, is pleased to make the following regulations and the same are hereby made and enacted accordingly.

1. The Governor General in Council may appoint a Board to be designated "The Board of Grain Supervisors of Canada" hereinafter called the Board. Such Board shall be honorary and shall consist of not more than twelve (12) members.

2. The Members of the Board shall be paid travelling and living expenses while actually engaged in the duties of the Board but otherwise shall receive no remuneration.

3. The Board shall make such enquiries and investigations as from time to time it deems necessary to ascertain what supplies of grain are now available or will be available. The Board shall ascertain the location and ownership of such grain and what transportation and elevator facilities are available in connection therewith, as well as all conditions connected with the marketing and the market price of the same. For the purpose of any enquiry or investigation held by the Board, the Board and the

several members thereof shall have all the powers of a Commissioner acting under Part One of the Inquiries Act.

4. The Board shall have power from time to time to fix the price at which grain stored in any elevator may be purchased and the conditions as to price, destination or otherwise under which grain may be removed from such elevator and may also prescribe what grain shall be sold to millers or milling firms in Canada or elsewhere (hereinafter called "Millers") and what grain shall be sent to the United Kingdom and the Allied Powers and it shall be the duty of the Board to issue such orders and take such action as it deems necessary to facilitate at all times the transportation and delivery of grain in excess of domestic requirements to the United Kingdom and the Allied Powers.

(*a*) Any price so fixed shall be subject to the approval of the Chairman of the Board.

(*b*) The Board may from time to time appoint an Executive Committee of not less than three of its members of whom the Chairman shall be one and may assign to such Executive Committee any duties or powers within the competence of the Board.

5. The Board shall have power to receive offers for the purchase of grain from Millers and from the Wheat Export Company, Limited, or from any other person or body corporate, hereinafter referred to as "Overseas purchasers," representing or acting for the Government of the United Kingdom or for any of the Allied Nations or for any combination of the same, and from time to time to fix the prices at which such grain shall be sold.

6. The Board shall have power to take possession of and sell and deliver to Millers or to Overseas purchasers at the prices so fixed grain stored in any elevator, and to account and pay over to the owners thereof the proceeds of such sales after deducting all expenses connected with the taking possession, sale and delivery.

7. The Board shall, as far as possible, and having regard to position and the cost of transportation, fix a uniform price throughout Canada for grain of the same kind, quality and grade.

8. Notwithstanding anything in the Grain Act or in the Railway Act, the Board of Railway Commissioners for Canada shall have power to order any Railway Company to provide cars and other transportation facilities for handling grain and to transport as directed, grain taken possession of or owned by the Board.

9. Every person shall truthfully and promptly answer any inquiry made by the Board or by any person authorized on its behalf about any matter within its powers or duties, whether such enquiry is made verbally, in writing, by telegraph, or in any other way.

10. In this Order "Elevator" means and includes any terminal, country, private, public and hospital elevator, and any elevator licensed by the Board of Grain Commissioners for Canada.

11. The Board, with the approval of the Governor in Council, may make any regulations it deems necessary for the purpose of fully and effectively carrying out the objects and provisions of these regulations, and in particular, but without limiting the generality of the forgoing, may make regulations:—

(*a*) for appointing representatives in different places in Canada for the purpose, from time to time, of making known in such localities the prices for grain fixed and other regulations or directions made by the Board, and for reporting to the Board any violations of any order issued by the Board or any regulations made hereunder, and generally for assisting the Board in the effective discharge of its duties;

(*b*) to authorize the engaging of clerks, employees and assistants and the paying of their salaries;

(*c*) creating offences and providing penalties in respect of violations of any order made by the Board or of any regulation made hereunder.

RODOLPHE BOUDREAU,
Clerk of the Privy Council.

RETURN

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MALE Population of Canada, Census of 1911, between the Ages of 20 and 45, both years inclusive, according to conjugal condition and nativity.

MALE POPULATION OF CANADA, CENSUS OF 1911, BETWEEN THE AGES OF 20 AND 45, BOTH YEARS INCLUSIVE, ACCORDING TO CONJUGAL CONDITION AND NATIVITY.

C. represents Canadian-born. B. represents British-born. F. represents Foreign-born.

Provinces.	Total, 20-45.		20-24.		25-29.		30-34.		35-39.		40-44.		45.	
	Single.	Married.	Single.	Married.	Single.	Married.	Single.	Married.	Single.	Married.	Single.	Married.	Single.	Married.
Canada	760,453	823,096	319,610	66,247	205,125	165,369	112,011	198,328	68,144	189,731	46,716	166,302	8,847	37,119
C	464,986	539,504	211,812	45,433	115,326	104,554	63,116	126,260	40,108	125,550	29,090	112,374	5,534	25,333
B	152,194	140,803	52,868	8,207	47,780	29,652	26,378	36,665	14,580	32,125	8,960	28,093	1,628	6,061
F	143,273	142,789	51,930	12,607	42,019	31,163	22,517	35,403	13,456	32,056	8,666	25,835	1,685	5,725
Prince Edward Island	8,051	6,791	3,592	363	1,991	1,063	1,123	1,478	716	1,708	538	1,756	91	423
C	7,965	6,632	3,550	348	1,975	1,035	1,109	1,455	713	1,658	528	1,723	90	413
B	48	93	23	5	11	19	7	13	1	29	5	23	1	4
F	38	66	19	10	5	9	7	10	2	21	5	10	.....	6
Nova Scotia	42,667	45,984	18,951	3,125	10,674	8,229	5,985	10,595	3,862	11,298	2,713	10,326	482	2,411
C	38,001	38,899	17,004	2,576	9,370	6,639	5,309	8,945	3,445	2,722	2,439	8,907	431	2,110
B	3,129	4,807	1,278	371	853	1,041	477	1,095	280	1,068	214	1,024	27	208
F	1,537	2,278	669	178	451	549	199	555	137	508	60	395	21	93
New Brunswick	28,056	33,199	12,902	2,482	6,744	6,153	3,724	7,646	2,489	7,991	1,814	7,143	383	1,784
C	26,346	30,802	12,210	2,294	9,307	5,697	3,493	7,048	2,296	7,430	1,683	6,660	357	1,673
B	922	1,225	368	78	238	235	135	278	89	300	78	261	14	73
F	788	1,172	324	110	199	221	96	320	104	261	53	222	12	38
Quebec	143,540	208,679	72,692	18,239	34,028	43,921	17,111	50,150	10,504	47,435	7,692	40,377	1,513	8,557
C	123,623	182,432	65,260	16,378	28,448	38,213	13,697	43,669	8,440	41,429	6,506	35,350	1,272	7,393
B	9,182	12,751	3,317	763	2,738	2,632	1,518	3,190	964	2,868	531	2,646	114	632
F	10,735	13,516	4,115	1,098	2,842	3,076	1,896	3,291	1,100	3,138	655	2,381	127	532
Ontario	243,050	289,247	104,245	23,465	62,714	57,140	34,441	67,419	22,214	66,657	16,421	60,732	3,015	13,834
C	170,807	200,484	75,473	16,872	41,504	37,387	23,696	45,113	15,857	47,012	12,073	43,961	2,204	10,139
B	44,094	57,078	17,118	3,697	12,801	12,314	6,674	14,404	4,092	12,679	2,876	11,473	533	2,511
F	28,149	31,685	11,654	2,896	8,409	7,439	4,071	7,902	2,265	6,966	1,472	5,298	278	1,184
Manitoba	55,999	57,372	24,350	3,860	16,450	11,847	7,826	14,910	4,259	13,066	2,635	11,251	479	2,438
C	23,161	21,633	10,956	1,406	6,234	4,151	2,905	5,603	1,709	5,049	1,158	4,491	199	933
B	21,050	16,896	7,859	858	6,991	3,603	3,426	4,680	1,704	3,857	907	3,220	163	678
F	11,788	18,843	5,535	1,596	3,225	4,093	1,495	4,627	846	4,160	570	3,540	117	827
Saskatchewan	81,314	66,691	32,993	4,997	24,660	14,969	12,918	17,349	6,652	15,084	3,461	11,749	630	2,543
C	32,214	24,458	13,244	1,682	9,624	5,360	5,232	6,505	2,545	5,629	1,344	4,300	225	982
B	22,857	14,157	7,865	878	7,574	2,997	4,162	3,970	2,068	3,320	1,019	2,534	169	458
F	26,243	28,076	11,884	2,437	7,462	6,612	3,524	6,874	2,039	6,135	1,098	4,915	236	1,103

Alberta	64,263	50,809	23,551	4,484	19,532	10,356	10,896	12,786	6,062	11,560	3,585	9,509	637	2,114
C	19,170	15,669	6,802	1,683	5,651	2,964	3,362	3,908	2,005	3,455	1,125	2,997	225	662
B	18,693	11,865	6,358	568	6,186	2,500	3,401	3,189	1,650	2,895	950	2,239	148	474
F	26,400	23,275	10,391	2,233	7,695	4,892	4,133	5,689	2,407	5,210	1,510	4,273	264	978
British Columbia	89,729	61,305	25,555	4,906	27,533	11,117	17,266	15,356	10,681	14,292	7,228	12,806	1,466	2,828
C	22,189	16,144	6,892	1,886	5,959	2,628	4,048	3,504	2,819	3,688	1,994	3,550	477	888
B	31,429	21,699	8,570	980	10,213	4,277	6,400	5,796	3,573	5,057	2,250	4,585	423	1,004
F	36,111	23,462	10,093	2,040	11,361	4,212	6,818	6,056	4,289	5,547	2,984	4,671	566	936
Yukon	3,062	1,019	419	47	650	143	636	209	647	247	577	311	133	62
C	910	448	100	33	140	71	200	98	233	108	199	115	38	23
B	711	164	77	5	151	14	171	34	154	32	124	67	34	12
F	1,441	407	242	9	359	58	265	77	260	107	254	129	61	27
North-West Territories	722	2,000	360	279	149	431	85	430	58	393	52	342	18	125
C	600	1,903	321	275	114	409	65	412	46	370	41	320	13	117
B	79	88	35	4	24	20	7	16	5	20	6	21	2	7
F	43	9	4	.....	11	2	13	2	7	3	5	1	3	1

NOTE 1.—Under the heading "single" are included "widowed" and "divorced," and those whose conjugal condition was unknown are included under "married." The total number of widowed and divorced males between the ages of 20 and 45 were approximately 17,000, and of the "unknown" between the same age periods, approximately 14,000.

NOTE 2.—"Foreign-born" includes all persons not born within the British Empire, whether naturalized or not. Of the total of 286,062 foreign-born in 1911, it is estimated that about 115,000 were naturalized.

NOTE 3.—The figures of the table are those of the Census of 1911. It is estimated that the increase since 1911 in the male population of Canada, of ages 20 to 45, lies between 300,000 and 400,000. As approximately this number has been already recruited, the figures of 1911, it is thought, reflect rather closely present conditions in the Dominion as a whole, though changes have doubtless occurred in individual provinces.

June 12, 1917.

R. H. COATS,

Dominion Statistician and Controller of Census.

REPORT

OF

ACTING COMMISSIONER W. F. O'CONNOR, K.C.

RE

COST OF LIVING

COLD STORAGE IN CANADA

PRINTED BY ORDER OF PARLIAMENT.

OTTAWA.
PRINTED BY J. DE L. TACHÉ
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY.
1917.

[No. 210a—1917.]

Report of W. F. O'Connor, K.C., Acting Commissioner re Cost of Living.

Ottawa, July 9, 1917.

To Hon. T. W. Crothers, K.C.,
Minister of Labour,
Ottawa.

COLD STORAGE CONDITIONS IN CANADA.

PART I.

INTRODUCTORY.

The primary object of the investigation concerning which I now report was to discover whether there existed within Canada as among those engaged in the business of cold storage, any illegal combination, undue accumulation or overcharging, in contravention of Order in Council No. 2777 of November 10, 1916; but noting very early in the course of the investigation that much valuable information of a character collateral to its main purpose and not entirely unrelated to it, could be conveniently obtained and recorded along with the necessary data as to business arrangements, stocks, costs and prices, the scope of the investigation was extended to include such other matter. As a result it is possible to make this report one concerning cold storage conditions in Canada, rather than as it would otherwise have been, one concerning the costs and prices of cold storage commodities in Canada. The matters of costs and prices will necessarily receive the larger share of attention notwithstanding.

The popular conception, if one may judge from articles and correspondence in the newspaper press and from discussions heard in smoking cars and in social clubs, is that there is a "food trust" consisting of the various cold storage companies, banded more or less loosely together with the common object of creating an artificial scarcity by means of the accumulation of excessive quantities of foodstuffs so that prices may be enhanced to the great profit of the "trust" and the great detriment of the public. Weird stories are heard of tremendous quantities of food, good and bad, that have been devoted to destruction, to lessen the supply or because they had been held until unfit for consumption. My inquiries enable me to pronounce with emphasis that there is no such "trust" and I have failed to discover any instance of the destruction of fit-food. Broken and bad eggs are of course destroyed, and many millions of eggs will yield many thousands of broken and bad eggs. Injured and unfit food of all kinds is from time to time and quite properly, in all businesses, destroyed. The law so compels. The most dangerous error is one based upon truth. Supplies have been properly destroyed. A story of their guilty destruction makes easy headway. Again there is nothing like combination among the various companies. There is very lively competition instead. A few of the cold storage companies, however, have attained such dimensions, and have so centralized the business in certain lines that as respects particular commodities particular companies are able to exercise a practical

monopoly, especially of export business. The following pages will make this fact very plainly appear. In some instances this practical monopoly has been fairly and justly administered. In others, concerning which I shall have to specifically report, it has not.

As to the matter of over-accumulation all the evidence is against it. The popular conception is unquestionably wrong. It is surely not open to contradiction that the reasonableness of the amount of stock in trade carried by a person, firm or company engaged in business depends upon the volume of business transacted, by which I mean the "turnover." Immense amounts of produce are bought and carried by the various cold storage companies as of course. But as immense amounts are sold by them. The sales of some of the larger companies, many of them for export, amount to millions of dollars per month. When one hears of a company having on hand say a million dollars' worth of bacon this seems a preposterous holding until one discovers that it represents only sufficient for a fortnight's sales. Canada's exports of foodstuffs have expanded immensely since the beginning of the war. Practically all the meats, and a very large proportion of the eggs, butter, and cheese exported goes through the cold storage houses. The greater stocks carried are necessarily carried. They are not carried for long. They are merely passing through. It would be an idle and a foolish operation, with the world clamouring for food and bidding high for it, if hard-headed business men, able to sell and take fair profits, were to hold their stocks, forego the opportunity of selling, buying and selling again, and gamble upon the chance of further advances. In any event Canadian cold storage companies have not done so, as the facts and figures hereinafter set forth will show. What profits have been made are the result of repeated turnovers. For the six months last past I have maintained a close and persistent scrutiny over the operations of these companies. Without exception they report to me monthly, with items, their stock on hand, their receipts, their costs, their sales, their prices realized and the quantities sold for export and for home consumption respectively. In the beginning the necessary information, covering a four-year period, year by year, 1913 to 1916, inclusive, was obtained under oath. The monthly reports are by cards not under oath, nor need they be for the present purpose, because they connect with the basis information originally obtained. Nor have I omitted to check the returns as to exports by the customs figures, nor to check those given from time to time as to domestic sales by examination of the actual invoices of purchasers, extraneously obtained. Further, in response to many suggestions from such companies that I personally attend and examine their books, I have caused it to be known that in due course an expert accountant will in all likelihood attend for this purpose. You will be aware that I have already recommended such action, for the purpose of verification and especially of securing an accurate computation of the profits upon by-products. I make the preceding statements to justify the claim that the figures hereinafter appearing may be accepted as highly reliable.

As to the matter of the reasonableness of prices and the part played by cold storage companies in the enhancement of prices, I have thought it best to supply, copiously and in detail, the actual figures, so that all who care to investigate may reach conclusions for themselves, whether or not their conclusions agree with mine, which will be stated in proper sequence. I have had occasion in a previous report to state in effect that high prices and unfair prices are not necessarily synonymous. All food prices are ruling high. I shall not reiterate my ideas as to what have been the contributing causes. They have been many. As respects cold storage products, however, I will state here that it seems to me that extensive buying for export has contributed most to the advances in prices of cold storage commodities. A world shortage has induced high bidding in a world market. The domestic price has followed the trend of export prices upwards. And I humbly suggest that the figures which follow will disclose to those who consult them that the Canadian farmer has not been blind to his opportunities. It will be noted that the cost to the various companies of the

various cold storage commodities has been climbing, and that a direct relation has been maintained between the cost to the companies and their sale prices. In stating this I do not mean to be understood as stating that the relation has been invariable or as contending that there have not been cases of undue profit taking. Quite the contrary, as will appear at a later stage of this report when I shall express an opinion concerning certain seemingly excessive charging, which in my judgment, is none the less open to criticism because, for the most part, the commodities affected were destined for export to Great Britain and the allies overseas. But on the whole the operations of the cold storage companies have stood the test of investigation well. The profits per pound or per dozen of most of these companies have been small, and have not to any great degree contributed to produce the very high prices prevailing. Any one can deduce this fact from the tabulations which appear later on herein. A very small profit, per pound or per dozen, will produce quite an aggregate, all the same, when the operations of a company cover many millions of pounds or of dozens. For this reason it seems to me that such companies may well be content in such times as these with a very minute profit, per pound or per dozen, indeed.

As already stated, the investigation covered the period of 1913 to 1916 inclusive. Thus comparisons may be made with conditions prevailing before the war. In addition, this report is extended to take in the operations of the cold storage companies to the first day of May last. It will appear that while we have quite sufficient cold storage products for our own needs, and more, an abnormal export demand is lessening our stores and enhancing the prices of commodities for domestic consumption.

It is planned to issue a monthly bulletin hereafter stating the exact conditions obtaining during the period immediately preceding the issue.

The three subsequent parts of this report are devoted to (1) a classification of the cold storage establishments, including abattoirs, in Canada, and a consideration of their character; (2) a consideration of the proper functions of cold storage companies and of the operations of the year 1916 in Canada with an analysis of the margins of profits and of the relation of exports to domestic consumption; an analysis of the business done by certain of the larger companies; a consideration of the reasonableness or unreasonableness of the amount of stocks carried; a comparison of margins of profits, etc., and of the business done in the years 1913 to 1916; and a consideration whether the business of the larger companies has proportionately increased with relation to the total Canadian trade in cold storage products since the war; (3) a statement of the present conditions with prevailing costs and prices and a comparison with the equivalent period of one year ago.

PART II.

CLASSIFICATION AND CHARACTER OF CANADIAN COLD STORAGE ESTABLISHMENTS, INCLUDING ABATTOIRS.

The cold storage companies of Canada, including abattoir houses, control about half the meat which is killed in Canada and about one-fifth of the total quantity of eggs produced in Canada, more than one-third of the cheese and about one-fifth of the butter; that is, approximately these proportions of the total products of Canada in each of these commodities pass through cold storage in their transit from producer to consumer. It is not all the property at any given time of cold storage companies but is either owned by them or stored on their premises. It will be shown in the course of this report, however, that public warehousing, properly so-called, that is, the storing of goods in refrigerated space supplied by a company not owning the goods stored, bears a small proportion to the total quantity of produce passing through cold storage. In this Canada is unique and in spite of the effort of successive Governments to encourage the public storage business by subsidies the trend towards concentration in the handling of food to a limited number of private companies has not been checked and with the progress of the war is becoming more marked. This is part of the price Canada has paid for her position as a trader in a world market.

There are about one hundred and ten cold storage warehouses in Canada, operated by seventy-six different companies, two being American owned. Seven operate one establishment only. Five are large export houses. These include nine establishments, exporting chiefly dairy products, each with at least one branch in Montreal. There are twelve companies dealing chiefly in fish, two of which have two establishments each, the others only one each. There are thirty-nine storage warehouses dealing in general cold storage commodities, including meats, dairy products, eggs and fish, the proportion of each commodity handled depending upon the location of the warehouse. One of the latter companies is affiliated with one of the abattoir companies. Thus thirty-eight independent establishments handle general produce.

The large centres of cold storage operations are Montreal, Toronto, Winnipeg, Calgary, Moosejaw, Edmonton and Vancouver. The number of cubic feet of refrigerated space available in Montreal is approximately 3,350,000; in Toronto, 3,600,000; in Winnipeg, 2,500,000; in Calgary, 1,350,000; in Vancouver, 1,500,000; in Moosejaw, 600,000; and in Edmonton, 800,000. In Vancouver the greater part of the cold storage space is used for fish; on the prairies east to Fort William meat takes the greater part of the cold storage space; in Toronto, meat and dairy products; in Ontario, exclusive of Toronto, dairy products; in Montreal, butter, cheese and eggs, and in the Maritime Provinces, fish. Each of the large meat firms which do any export trade have also an export house in Montreal.

Appended is a list of the names and addresses of every known cold storage warehouse in Canada with the number of cubic feet of refrigerated space. The classification here used is on the basis of the food handled by cold storage companies, the abattoirs dealing chiefly in meat, the general cold storage warehouses dealing in meat, eggs, and dairy products and fish to a limited extent. Those classified under the heading "Fish" usually store butter and eggs, cheese (to a very limited extent) and a small proportion of meat.

CLASSIFICATION OF COLD STORAGE WAREHOUSES ACCORDING TO COMMODITIES STORED.

C. F.—Cubic Feet of Refrigerated Space.

ABATTOIRS.

	Cubic Feet.
Gunns, Ltd., St. John	26,000
" " Harriston	57,000
Gunns, Langlois, Montreal	400,000
" Montreal	400,000
" (1) Toronto	98,000
" (2) Toronto	800,000
J. H. Sansregrette, Joliette, Que	23,394
Wm. Davies Co., Ltd., Montreal	225,950
" " Toronto	244,436
" " Winnipeg	84,000
Masterman Packing and Provision Co., Montreal	135,000
Matthews-Blackwell, Ltd., Montreal	200,000
Matthews, Ltd., Montreal	158,400
Matthews-Blackwell, Ltd., Hull	129,000
" " Peterborough	175,000
" " Brantford	250,000
" " Toronto	362,000
Montreal Abattoirs, Ltd., Montreal	1,473,976
The Harris Abattoir Co., Ltd., Toronto	806,400
Gallagher, Holman and Lafrance Co., Winnipeg	158,400
" " " Kenora, Ont	7,200
" " " Port Arthur	17,200
" " " Fort William	9,200
Gordon-Ironsides and Fares Co., Ltd., Winnipeg	417,000
" " Port Arthur	48,000
" " Fort William	81,000
" " Moosejaw	600,000
" " Regina	60,000
" " Saskatoon	75,000
Western Packing Co., of Canada, Ltd., Winnipeg	48,000
P. Burns & Co., Calgary	1,337,414
" " Nelson	24,111
" " Vancouver	700,000
" " Edmonton	299,447
Gainers, Ltd., Edmonton	94,080
Vancouver-Prince Rupert Meat Co., Vancouver	100,000
" " " New Westminster	250,000
Toronto Municipal Abattoir and Cold Storage, Toronto	155,904
Total refrigerated space	10,170,512

AMERICAN COMPANIES.

Armour & Co., Hamilton, Ont	570,809
Swift-Canadian Co., Toronto, Ont	763,000
" " Winnipeg, Man	159,187
" " Montreal, Que	47,100
" " Edmonton, Alta	408,000
" " Fort William	36,576
" " Victoria, B.C	18,600
" " Nelson	6,726
Total refrigerated space	2,009,998
Total refrigerated space of abattoirs	10,170,512
	12,180,510

EXPORT HOUSES.

A. A. Ayer & Co., Montreal	700,000
Gould Cold Storage Co., Montreal	500,000
Lovell & Christmas, Ltd., Montreal	460,000
Ingersoll Packing Co., Montreal	4,000
" " Ingersoll	650,000
Whyte Packing Co., Montreal	40,000
" " Brockville	87,000
" " Stratford	200,000
Total refrigerated space	2,641,000

FISH.

	Cubic Feet.
S. Y. Wilson, Halifax	99,600
Maritime Fish Co., Canso Cold Storage, Canso, N.S.	62,000
Lockeport Cold Storage Co., Lockeport, N.S.	59,000
North Atlantic Fisheries Co., Port Hawkesbury	338,550
A. & R. Loggie Co., Loggieville, N.B.	40,000
Maritime Fish Corporation Co., Ltd., Montreal, Que.	None.
Dominion Fish and Fruit Co., Quebec, Que.	225,000
Lemon Bros., Owen Sound	66,000
M. Doyle Fish Co., Toronto, Ont.	25,000
Winnipeg Fish Co., Ltd., Winnipeg, Man	87,628
W. J. Guest Fish Co., Winnipeg, Man.	30,000
St. Mungo Packing Co., New Westminister, B.C.	40,000
Canadian Fish and Cold Storage Co., Prince Rupert	781,000
Canadian Fishing Co., Vancouver	300,000
Total refrigerated space	2,154,718

NOTE.—Maritime Fish Co. have cooling rooms but have no refrigerated space.

GENERAL.

New Brunswick Cold Storage Co., St. John, N.B.	744,000
Ames & Sons, Sherbrooke, Que.	110,000
Brantford Cold Storage Co., Brantford, Ont.	36,000
T. Long & Bros., Ltd., Collingwood, Ont.	36,000
R. H. Ashton Co., Morrisburg, Ont.	45,600
E. Morgan, Delhi, Ont.	24,000
Government Pre-Cooling and Experimental Warehouse, Grimsby.	40,000
Flavelles, Ltd., Lindsay, Ont.	131,510
London Cold Storage and Warehousing Co., London, Ont.	400,000
Scott & Hogg Co., Peterborough, Ont.	90,000
Moore Co., St. Mary's, Ont.	105,000
St. Thomas Packing Co., St. Thomas, Ont.	174,141
Algoma Produce Co., Sault Ste. Marie, Ont.	55,806
J. B. Jackson & Co., Simcoe, Ont.	36,000
Bowes & Co., Toronto, Ont	40,000
John J. Fee, Toronto, Ont.	30,000
Manning Cold Storage, Toronto, Ont.	300,000
Marshalls Co., Ltd., Toronto, Ont.	40,000
Toronto Municipal Abattoir and Cold Storage, Toronto, Ont.	155,904
Public Cold Storage and Warehouse Co., Toronto, Ont.	768,000
W. Wight & Co., Toronto, Ont.	34,529
Essex Provision Co., Windsor, Ont.	67,300
Chatham Packing Co., Chatham, Ont.	50,000
Brandon Creamery and Supply Co., Brandon, Man.	27,500
MacDonald & Co., Ltd., Winnipeg, Man.	67,200
Manitoba Cold Storage Co., Winnipeg, Man.	1,500,000
Moosejaw Cold Storage Co., Moosejaw.	189,764
Regina Packing Cold Storage Co., Regina, Sask.	40,000
Metropolitan Cold Storage Co., Vonda, Sask.	24,000
Campbell, Wilson & Horne, Ltd., Lethbridge, Alta.	5,000
Edmonton Cold Storage Co., Edmonton, Alta.	150,056
Campbell-Griffin, Ltd., Calgary, Alta.	111,050
British Columbia Packers' Association, Vancouver, B.C.	400,000
Mainland Ice and Cold Storage Co., Vancouver, B.C.	155,000
Vancouver Ice and Cold Storage Co., Vancouver, B.C.	700,000
B. Wilson Co., Ltd., Victoria, B.C.	74,000
Pacific Cold Storage Co., Dawson, Yukon Territory.	44,900
F. W. Fearman Co., Hamilton, Ont.	155,200
Total refrigerated space	7,156,860

The extent of refrigerated space owned respectively by these different classes indicates the magnitude of their operations. Of a total of over 24,000,000 cubic feet of refrigerated space approximately 12,200,000 is held by the abattoir companies, 2,650,000 by the export houses dealing in dairy produce and eggs, 2,250,000 by the fish companies and 7,200,000 by general cold storage warehouse companies.

The dealings of the abattoir companies are the most extensive of any of the cold storage operators. It will be observed from the appended list that some of these companies are very large, what might be called zone companies, having establishments in

the strategic points, for the accumulation and distribution of meats. Some limit their activities to Western Canada. The export trade of such companies is comparatively small. Those covering Eastern Canada while supplying a large home market have also a very large export trade. Those establishments in the important centres of both Eastern and Western Canada supply both the home and export market. The organization of the abattoir companies is most complete. They buy the live stock in the centres most convenient to the supply, kill in their own abattoirs and by the most elaborate and efficient methods manufacture the by-products and conserve the whole by means of refrigerated space. They are thus enabled to hold the dressed meat as a commodity of commerce longer than is the local butcher and to supply the home or the export market according as opportunity offers. Three of these huge meat companies carry the control of their products still further and have established retail branches in the larger cities, thus completing the process of transit from producer to consumer. Approximately 40 per cent of the quantity sold by these three companies for home consumption is consigned to their retail stores. Such retail stores are allowed a slight reduction on the cost of food received. One company has about 80 and another about 40 of such retail stores. Aside from the very complete and thorough system of distribution thus evolved, such companies have an immense advantage over the small butcher on account of the facilities which they possess for manufacturing by-products. This enables such stores to compete on more favourable terms with other retail stores dealing in the same lines. The proceeds from by-products ought to enable the abattoir companies to sell on a much smaller margin than can the smaller butcher and if necessary to pay a higher price to the producer than the smaller buyer can afford, but nothing disclosed upon the investigation indicated that either of these natural results have in fact followed. Such companies do not limit themselves to dealing in meat. The traffic in butter, cheese, eggs and fish, although secondary in importance, is large in volume.

The export houses for dairy produce and eggs are situated in Montreal. Two of these it will be observed have branches in Ontario. The Montreal branches are designed chiefly to handle the goods exported from Ontario to Great Britain. The Gould Cold Storage Company maintain there a very large public warehouse, storing for others only. The remaining two, while storing for others, devote most of their energies to dealing for themselves, being the export buyers for approximately a quarter of the cheese produced in Canada.

The fish companies show the rudiments of zone organization but are only slightly developed along that line. Although there are only four inland fish cold storage companies, namely the Doyle Fish Company, Toronto, Lemon Bros., Owen Sound, the Winnipeg Fish Company and the Guest Fish Company, Winnipeg, yet many of the general cold storage warehouses store fish in large quantities.

CLASSIFICATION OF COLD STORAGE WAREHOUSES AS PUBLIC OR PRIVATE.

The facts revealed in the report on cold storage in Massachusetts in 1912 show a very striking contrast to conditions prevailing in Canada. In Massachusetts nearly 90 per cent of the cold storage warehouse business was public warehousing, that is the storing of goods not the property of the firms operating the warehouses. In Canada the conditions are reversed. Approximately 650,000,000 pounds of produce were *purchased* by Canadian cold storage companies in 1916 and about 88,000,000 pounds of produce not the property of the firms on whose premises it was stored were received into store. Just what proportion of the latter amount was the property of other cold storage companies, storing outside their own premises, for convenience, it is impossible to state. Whereas about 90 per cent of the cold storage business in

Massachusetts in 1912 was public warehousing, in Canada in 1916, only about 12½ per cent was public warehousing.

Cold storage warehousing is essentially a public utility in that it preserves perishable farm products so that instead of being subject to commerce only in a local way, as formerly, they have now become subject to the demands and opportunities of world commerce. The public character of this industry is recognized, however, by most of the private companies in that, on request, they store goods for others. There are three classes of cold storage establishments:—

First—Public and subsidized.

Second—Public but not subsidized.

Third—Private.

In view of the necessity of providing more space for public storing, a plan of subsidization was instituted in 1907 through the Department of Agriculture of Canada. The Dominion Government makes to newly organized cold storage establishments a total grant of 30 per cent of the cost of construction, 15 per cent being paid in the first year, 7 per cent in the second, 4 per cent in the third, 2 per cent in the fourth and 2 per cent in the fifth. The grant has been completely paid to twenty-five of these warehouses. Eight are still receiving grants. Up to March 31, 1917, amounts aggregating $132,539 had been paid on the grant made to these eight other warehouses, the balance still due being $20,953. As stated, however, public warehousing is not limited to warehouses publicly subsidized but is characteristic of practically all the cold storage plants. A publicly subsidized warehouse is required by law to store goods for others upon request. The public warehouses are supposed to derive most of their revenue from public warehousing, the private warehouses from trading in the commodities which they store. But an instance of a large public warehouse deriving practically all its revenue from private dealing is recorded later on herein.

PUBLICLY SUBSIDIZED COLD STORAGE WAREHOUSES.

	Cubic Feet.
Lockeport Cold Storage Co., Lockeport, N.S.	59,940
North Atlantic Fisheries, Port Hawkesbury, N.S.	338,550
" " Halifax Cold Storage, Halifax	80,000
New Brunswick Cold Storage Co., St. John, N.B.	744,000
Island Cold Storage, Charlottetown, P.E.I.	150,000
Sansregrette Cold Storage, Joliette, Quebec	23,394
Algoma Produce Co., Sault Ste. Marie, Ont.	55,806
Dominion Fish and Fruit Co., Quebec City, Que.	225,000
Brantford Cold Storage Co., Brantford, Ont	36,000
J. D. Moore, St. Mary's, Ont.	105,000
Flavelles, Ltd., Lindsay, Ont.	131,500
St. Thomas Packing Co., St. Thomas, Ont.	174,141
Windsor Ice and Cold Storage Co., Windsor, Ont.	67,300
Lemon Brothers, Owen Sound, Ont.	66,000
Whyte Packing Co., Mitchell, Ont.	30,600
Scott & Hogg, Peterborough, Ont.	90,000
Gunns Co., Ltd., Harriston, Ont.	57,069
Chatham Packing Co., Chatham, Ont.	144,400
R. H. Ashton, Morrisburg, Ont.	45,000
Brandon Creamery and Supply Co., Brandon, Man.	27,500
Metropolitan Cold Storage Co., Vonda, Sask.	24,000
Moose Jaw Cold Storage Co., Moosejaw, Sask.	189,764
Campbell-Griffin, Ltd., Calgary, Alta.	111,050
Edmonton Cold Storage Co., Edmonton, Alta.	150,056
Canadian Fish and Cold Storage Co., Prince Rupert, B.C.	781,000
B. Wilson & Co., Victoria, B.C.	64,000
Total refrigerated space	3,823,780

COLD STORAGE WAREHOUSES NOT SUBSIDIZED.

	Cubic Feet.
Canada Cold Storage Co., Montreal	762,000
Lovell & Christmas, Ltd., Montreal	460,000
A. A. Ayer, Ltd., Montreal	700,000
Gunn, Langlois, Ltd., Montreal	400,000
A. Ames, Sherbrooke, P.Q	110,000
Municipal Abattoir, Toronto, Ont	155,304
Long Bros., Collingwood, Ont	36,000
London Cold Storage Co., London, Ont	400,000
Ottawa Cold Storage Co., Ottawa, Ont	129,000
Manning Cold Storage Co., Toronto, Ont	300,000
Public Cold Storage and Warehouse, Toronto Ont	768,000
Government Cold Storage Station, Grimsby, Ont	40,000
Manitoba Cold Storage, Winnipeg, Man	1,500,000
Vancouver Ice and Cold Storage, Vancouver, B.C	700,000
Pacific Cold Storage Co., Yukon	44,900
Total refrigerated space	6,505,804

It will be observed from the above list that the publicly subsidized cold storage plants have a total refrigerated space of 3,823,780 cubic feet and that the other public warehouses have a total of 6,505,804 cubic feet, leaving the total refrigerated space of the private warehouses 13,800,000 cubic feet. Only three of the publicly subsidized cold storage warehouses limit their activities to storing for others only, the contention being that they are not sufficiently patronized and that the income from public storing is too small to enable them to meet their expenses without the profit derived from dealing in cold storage commodities at first hand. The proportion between the goods stored for others and that bought for the purposes of trade by the publicly subsidized cold storage warehouses is shown in the following table:—

PUBLICLY SUBSIDIZED COLD STORAGE WAREHOUSES.

	Quantity Received into Store for Others in 1916.	Quantity Purchased during 1916.
Butter ..lbs.	1,287,965	3,658,029
Eggs ..doz.	950,597	5,388,779
Cheese ..lbs.	95,881	1,792,757
Beef .. "	2,768,151	210,000
Pork .. "	514,153	
Bacon .. "	26,714	200,306
Ham .. "	10,570	306,733
Mutton and Lamb .. "	621,653	414,356
Fish .. "	2,633,267	3,320,169
Total ..	8,908,951	75,367,850

PUBLIC COLD STORAGE WAREHOUSES NOT SUBSIDIZED.

	Quantity Received into Store for Others in 1916.	Quantity Purchased during 1916.
Butter ..lbs.	7,663,356	9,273,484
Eggs ..doz.	3,844,640	3,169,850
Cheese ..lbs.	47,349,410	55,471,110
Beef .. "	13,887,252	360,640
Pork .. "	1,103,075	1,900,600
Ham .. "	16,200	12,010
Bacon .. "		12,140
Mutton and lamb .. "	1,041,213	33,860
Fish .. "	462,704	49,512
Total ..	15,291,130	70,283,214

The total amount of produce handled by subsidized companies in 1916 was over 84,000,000 pounds; 12 per cent only was stored for others. The total amount of produce handled by public warehouses not subsidized during the same period was approximately 85,000,000 pounds; 18 per cent of which was stored for others. The total quantity of produce stored in 1916 in subsidized and public warehouses not the property of the firms occupying the warehouses, was slightly over 24,000,000 pounds. It will be remembered that the total quantity received into store in cold storage warehouses in 1916, not the property of the companies storing, was about 88,000,000 pounds; 64,000,000 pounds of produce was stored, therefore, by concerns which although technically called private warehousing companies deserve the title of public cold storage establishments from the fact that they store 73 per cent of all the food put into cold storage, not the property of the firms storing. It may be, however, that considerable of the produce thus stored was the property of other storage companies, stored for convenience outside their premises.

In connection with the above list of publicly subsidized cold storage warehouses and in accentuation of the comparison between the amount of storing on behalf of the companies and of the public, it may be mentioned that one firm in Lindsay which received the last grant on its total subsidy of $15,900 in 1915 reports a very small quantity of produce stored for the public since 1913, so insignificant in fact that no record is kept of the amount. This although the company did a very flourishing trade in that section of the country, purchasing approximately 2¼ million pounds of butter, nearly 4 million dozen eggs and over 1½ million pounds of cheese, from January 1 to December 1, 1916. The company's trade has trebled, indeed, since 1913. But the fact is that public warehousing meets a very real need as is shown by the business handled both by public and private warehouses. In the Maritime Provinces the public warehouses are particularly useful to the public. In 1916 they stored, three hundred thousand pounds of butter, nearly two million pounds of beef and two million pounds of fish, the property very largely of the smaller dealers in fish and produce.

The public non-subsidized warehouses of Montreal, Toronto, London, Winnipeg, and Moosejaw are likewise performing a valuable public service. Those storing for others only, in Montreal, received approximately in 1916, 3,600,000 pounds of butter, 600,000 dozen of eggs, 40,000,000 pounds of cheese, and 3,000,000 pounds of meat and fowl.

Some of the larger public warehouses in Montreal which deal in produce for themselves but also offer public storage space, have proved useful to wholesale dealers, creameries and cheese factories, as depots for their produce destined for export. Two such warehouses stored for others in 1916, over a million pounds of butter, one and one-half million dozen of eggs and five million pounds of cheese.

The Montreal warehouses lead in public storing because they are located in the great export centre of Canada. The private cold storage warehouses in Toronto are both numerous and extensive. The public warehouses there play a much smaller role than in Montreal. For 1916 they show over a million pounds of butter stored; more than half a million dozen eggs; 600,000 pounds of cheese and about 3,000,000 pounds of meat, two and a half million pounds of which was beef. The Manitoba Cold Storage Company of Winnipeg, a public non-subsidized company storing for others only, show over a million pounds of butter received into store, over a half million dozen of eggs, nearly eight million pounds of beef and about half a million pounds of other meats.

Some of these figures are very remarkable in view of the increased export trade and as indicative of the degree of concentration of export commodities. Of the 3,600,000 pounds of butter referred to above as being stored by the public warehousing companies in Montreal which limit their business to public warehousing, nearly three and one-quarter millions were received into store by one company. The

actual destination of this butter is not known, but when it is considered that but 9,241,570 pounds were exported from all Canada, it is fairly safe to conclude that perhaps one-half of the butter exported from Canada passed through the premises of this one company. Eighteen and three-quarter million pounds of cheese were received into store during the year by another public warehousing company and over twenty-two million pounds by yet another company. A very large proportion of this was undoubtedly destined for export. Such companies as these would seem to be performing a very valuable public service. Their revenue is entirely derived from storage charges. It is obvious that these charges are reasonable from the fact that the concerns are so largely patronized.

In view of any possible effort on the part of the State to control export trade or export prices, it might be well to note that because such a large proportion of these commodities passes through only two or three warehouses governmental control or supervision would not be difficult to bring into effect.

PART III.

FUNCTIONS OF COLD STORAGE ESTABLISHMENTS—MARGINS OF PROFITS 1915-16—THE OPERATIONS OF "BIG BUSINESS"—THE MATTER OF OVER-ACCUMULATION.

The functions of the cold storage business in Canada are threefold:—

(1) to purchase the food products from the producer, (2) to prepare and preserve them, (3) to distribute them in (*a*) the home, and (*b*) the foreign markets. Note that these functions are stated in the order of their present importance in Canada. The primary function of a cold storage enterprise has not been supposed to be the purchasing and distributing of food but it has become such in Canada, wherein the essential function of preserving the food for the public by refrigeration has been reduced to a position of secondary importance. This fact has been already proved by a comparison of the quantities of food stored for the public with those stored by the cold storage companies themselves for private dealing.

It is essential in the interest of efficiency and economy that the purchasing and distributing of food be performed by the expert and experienced. In some countries it is the direct producer who in the main controls distribution. This is true of the Argentine, where the large landholders and owners of numerous herds exercise great authority by means of their land control and the immense revenues derived from land and cattle; but in more commercialized North America the control of food supplies and the benefit of the revenue derived from such is mainly in the hands of the distributors. It does not necessarily follow, however, that such control has been oppressively exercised. It will be shown, from the comparative smallness of the margin secured by nearly all of these distributors as compared with the actual spread in the price paid to the producer and by the consumer, that the amount of such spread is by no means entirely due to the cold storage companies (as so many have supposed or alleged), and that the average selling price of cold storage commodities is relatively much nearer the price paid to the producer than is the retail price. This is naturally so because the cold storage operator is the next to handle the food after the primary producer, whereas the grocer and the butcher come third or fourth in the order of those who pass it along to the consumer; but when in December, for example, the farmer was receiving about 47 cents for his butter, the cold storage companies were selling it at about 49 cents and the grocer selling it at 55 cents. This is one specific example only, but it is indicative of the general trend of prices. The greater part of the "spread" between the price paid to the producer and that paid by the consumer arises after the products are out of cold storage.

The causes of the conditions referred to are manifold and of long standing, and if the purpose of this report were to provide an analysis of Canadian commercial history, instead of as exact as possible a statement of the conditions presently and immediately affecting cold storage commodities, this would be as good a place as any for reciting and analyzing them. But, wandering not from the text, and taking conditions as they are, the simple and potent fact is that the large cold storage companies which operate in the different sections of Canada, having or securing the capital to control and the organizations to distribute the country's food products, have set themselves to the doing of it, and with success. This control does not in all cases approximate the absolute. With respect to certain lines it does. Canada's export trade of cold storage products is practically limited to four or five large meat companies and three or four large export houses which export cheese and dairy pro-

ducts. This export trade, which has attained to such immense proportions since the war, has greatly increased the capital and solidified the organization of the companies which have been so fortunate as to have had it come, or to have contrived to bring it their way. When the opportunity offered they were ready for it, and whether or not they have administered a practical monopoly of their country's foodstuffs in time of war in such manner as in the judgment of their country they had ought, there is due to them at least a meed of admiration on account of the efficiency with which they have performed what they set out to do. Their reward has been that which, doubtless, they anticipated—a large and increased revenue with substantial profits. In the face of a tremendous and consistent export demand the matter of the prices payable by them to their vendors was one practically immaterial, and seems to have been so regarded. The unfortunate domestic consumer, though living in a land of plenty, was thus constituted a competitive buyer as against a hungering world, whose fields and farms produced not enough or not at all; the export prices reacted upon domestic prices and raised them, notch by notch, until Canadian foodstuffs for home consumption were selling, as they yet are, at prices ordinarily associated with periods of famine. It is proper that the Canadian consumer's contribution towards the upbuilding of Canada's immense export trade, so rendered, should be recognized. Up to the present the laurels have gone to the purveyors. The food consumer has suffered as a result of war conditions. The food purveyor has not. He has seen to it that he has been well and sufficiently paid. Accordingly, while yielding well-deserved credit to the cold storage companies of Canada for the capable manner in which they have grappled with the problem of supplying the needs of the armies and people of Great Britain and the allies, it will be well to remember that the performance has been upon strictly business and not upon patriotic lines. The consumer, who alone has suffered for his country in the process, is the patriot.

The control exerted by the cold storage companies over export trade is shown by the proportion of such handled by them. Of the 7½ million pounds of butter exported, 5¼ millions pass through the hands of cold storage companies. Of the 157 million pounds of cheese, exported during 1916 from Canada, 55 millions were sold by cold storage companies and undoubtedly a very large proportion of the 47 million pounds received into storage by such companies was destined for export as practically all this 47 million pounds was in the warehouses of Montreal firms. The census returns show 4½ million dozen eggs sold for export. The cold storage companies show 6 million dozen eggs sold for the same purpose during the same period. It is possible that quantities have been duplicated in some cases but upon inquiring from the companies which did the bulk of the export trade it was stated that such duplication would not enter to any considerable degree into the records of the different companies, because eggs specified as for export would not be likely to pass into the hands of any other cold storage company. The difference is obviously due, then, to delay in passing through the customs houses or some other cause. Also a small proportion of these eggs sold for export was purchased from the United States. It was not attempted to discover exactly what this quantity was. Of the 41 million pounds of beef sold for export about 14 millions were sold by cold storage companies. The total quantity of pork and pork products shown by the Trade and Commerce returns is approximately 195 million pounds. One hundred and seventy millions were sold by cold storage companies. It will be readily observed, therefore, that of the total quantity of food sold for export, the cold storage companies control a very large proportion, indeed. Of the quantities used for home consumption they control such a proportion as to make them a very potent, but not necessarily a controlling factor because other groups of food dealers are still sufficiently strong and well established to compete vigorously with the cold storage operators in the purchasing and distributing of certain lines of food. The following table is an analysis of the business done by all the cold storage companies of Canada in 1916. From this table has been omitted the report on fish which will appear in a separate section.

TABLE No. I.

Commodity.	1 Total production of Canada (Note [1]) and the total quantity of meat (dressed weight) killed in Government abattoirs (Note [2]) for twelve months from Jan. 1 to Dec. 1, 1916.	1 [a] Estimated Home Consumption for all Canada.	2 Total quantity purchased by cold storage companies and cost of same laid down in the warehouses of these companies.	3	4 Average cost per pound.	5 The total quantity sold and amount for which sold (Note [11]).	6	7 Average Selling Price per lb. or doz.	8 Margin per lb. or doz. (Note [3])	9 Quantity sold for export from Canada according to the Trade and Commerce Returns (Note [10]).	10
	lbs. or doz.		lbs. or doz.	$	cts.	lbs. or doz.	$	cts.	cts.	lbs. or doz.	cts.
Butter	224,000,000	216,000,000	46,561,063	14,358,160	30·83	43,867,720	14,359,430	32·73	1·90	7,670,270	38·20
Cheese	202,000,000	20,000,000	76,806,324	13,908,000	18·11	72,638,890	13,713,058	18·88	0·77	157,768,762	19·40
Eggs	145,000,000	138,400,000	28,122,683	7,326,214	26·05	26,410,119	8,018,002	30·36	4·31	4,504,463	34·40
Beef	295,823,000	484,000,000	189,952,154	20,425,417	10·75	170,472,195	19,522,000	11·45	0·70	40,998,879	12·80
Fresh Pork			113,125,331	16,789,800	15·76	69,629,564	[9] 10,909,167	15·67	0·83		
Smoked Pork			45,723,503	7,009,367	15·33	54,056,692	9,927,020	18·36	3·03		
Pork	325,636,000	536,000,000	158,848,834	23,799,167	15·0	123,686,256	20,836,181	16·85	1·85	12,005,270	14·10
Bacon			125,605,834	19,795,040	15·76	151,309,429	30,787,823	20·34	4·58	169,401,293	19·10
Ham			14,383,485	2,761,676	19·20	14,390,367	3,067,809	21·32	2·11	3,858,032	16·10
Mutton and Lamb	28,956,000	72,000,000	13,609,605	2,286,939	16·80	12,666,380	2,205,229	17·41	0·61	183,601	14·10

NOTE 1.—Estimation based on the exports plus the estimated per capita consumption and the figures of the last decennial census.

NOTE 2.—This includes practically all the live stock killed in the abattoirs and represents, according to the estimates of the Agricultural Department, about half of the live stock killed in Canada.

NOTE 3.—This is the difference between the average selling price and the average cost price including all expenses of storing, overhead charges, losses and profit.

NOTE 4.—This is the difference between the average cost price per pound or dozen and the average selling price for export.

TABLE No. I—*Concluded.*

Commodity.	11 Quantity sold for export by the cold storage companies of Canada (Note 8).	12	13 Average selling price per pound.	14 Margin per pound or doz. (Note 4)	15 Quantity sold for Home Consumption by the cold storage companies in Canada (Note 8).	16	17 Average selling price per lb. or doz. (Note 5)	18 Margin per lb. or doz.	19 Quantity available for consumption, 1916. Sept. 1.	20 Dec. 1.	21 Goods stored in cold storage warehouses in Canada, not the property of the firms operating the warehouses in which they were stored. Quantity received into store during year.	22 Quantity in store 1916. Sept. 1.	23 Dec. 1.
	lbs. or doz.	$	cts.	cts.	lbs. or doz.	$	cts.	cts.	lbs. or doz.	lbs. or doz.	lbs. or doz.	lbs. or doz.	lbs. or doz.
Butter	5,241,297	1,646,297	31·40	0·57	29,376,287	9,750,405	33·18	2·35	8,824,657	7,277,948	10,494,659	4,710,977	3,669,093
Cheese	55,942,457	10,373,191	18·54	0·43	15,536,524	3,206,290	20·64	2·53	4,667,910	4,732,118	47,995,774	6,803,571	3,346,613
Eggs	6,057,522	2,036,058	33·61	6·56	16,344,677	4,877,425	29·84	3·79	6,515,188	2,623,436	5,708,418	4,836,349	1,703,948
Beef	13,885,286	1,381,227	9·94	[6]0·81 less	110,104,060	12,386,520	11·25	0·50	6,793,916	31,537,160	16,970,038	657,858	8,568,028
Fresh Pork	24,904,787	4,191,416	16·83	3·68	47,007,346	7,400,648	15·74	0·90	13,569,032	9,455,700	1,623,622	378,122	144,582
Smoked Pork	7,164,306	1,378,750	19·24	3·91	26,673,188	5,220,908	19·57	4·24	7,782,791	7,357,657	.....	.....	.....
Pork	32,069,093	5,570,168	17·37	2·37	[7]73,680,534	12,621,556	17·13	2·13	.....	.....	.....	.....	.....
Bacon	136,899,648	27,723,928	20·25	3·68	12,537,254	2,464,899	19·66	3·09	5,818,464	8,812,385	36,844	none	9,815
Ham	2,111,764	355,169	16·82	2·38 less [6].	10,483,628	2,403,881	22·93	3·73	815,703	1,236,716	37,370	3,900	10,721
Mutton and Lamb	45,400	7,634	16·81	0·01	12,003,446	2,088,283	17·39	0·59	646,917	2,108,057	1,576,285	13,255	840,259

Note 5—This is the difference between the average cost price and the average selling price for home consumption.

Note 6—This does not represent a loss as much meat sold for export in 1916 was bought in 1915 when the average cost of cold storage plants was lower than in 1916.

Note 7.—This includes some smoked pork products as well as bacon, the prices of such being very similar.

Note 8.—It will be observed that the sum of the quantities sold for export and for home consumption by the cold storage companies does not equal the total quantity sold. The reason for this is that many of the cold storage companies were unable to state whether their sales were for export or for home consumption, but a very considerable proportion of the total sales is shown in these two columns.

Note 9.—With regard to fresh pork a large percentage that was purchased as such was manufactured into bacon, ham and smoked pork and was sold as such.

Note 10.—This includes sales made by all dealers of all kinds in Canada.

Note 11.—Where the quantity sold exceeds the quantity purchased the excess represents partially the quantity on hand at the beginning of the year.

In column 1 of the preceding Table No. 1 is given the estimated total production of Canada for butter, cheese and eggs, the figures being based on the per capita consumption as shown by the last decennial census, exports and imports. The population for 1916 is taken as eight millions. The figures for meats in column 1 of the table are an actual record of the dressed weights of meat killed in Government inspected abattoirs and represent according to the computation of the Agricultural Department, about one-half of the meat produced in Canada. In column 1 (*a*) is given an estimation of the total quantities of the different commodities which entered into home consumption. The figures for butter, cheese and eggs are arrived at by taking the per capita consumption estimated by the Agricultural Department for butter, cheese and eggs and multiplying it by eight millions, the per capita consumption for butter being 27 pounds, for cheese 2½ pounds, and for eggs 17·3 dozen per annum. The figures for meats in column 1 (*a*) are based on the per capita consumption for beef, pork and mutton and lamb estimated by the commission appointed by the Agriculture Department of the United States in their report published in 1916 on the meat situation. In this report an analysis is made of the meat consumption of Canada, the United States, the Argentine and the different European countries. The per capita consumption in Canada of beef in 1911 is taken as 61 pounds, of mutton and lamb 9 pounds, and of pork 67 pounds. It would appear from the fact that 325,000,000 pounds of pork as against 295,000,000 pounds of beef passed through Government inspected abattoirs in 1916, that the proportion of pork consumed, as compared to beef, has risen. This suggestion is substantiated by the table of per capita consumption in Canada for meats as estimated by the same commission for 1900. It is as follows: beef, 54 pounds; mutton and lamb, 11 pounds; pork, 44 pounds. The spectacular increase in exports of pork, however, would account very largely for this. The export of fresh pork sold by cold storage companies in 1913 was approximately 2 per cent of the total quantity sold; in 1916 it was 26 per cent; of bacon in 1913 it was 24 per cent; in 1916 it was 91 per cent of ham; in 1915 less than 1 per cent was exported; in 1916 approximately 15 per cent. The figures in column 2, therefore, are not given as accurate or reliable data but are inserted for purposes of comparison as the nearest approximation procurable. The relation between the quantities of food products passing through cold storage and the total food products of Canada may now be seen. Approximately one-fifth of the butter produced in Canada passes through cold storage, more than one-third of the cheese, and about one-fifth of the eggs. Of the beef killed in Government inspected abattoirs approximately two-thirds pass through cold storage; and practically all the pork. The shrinkage in bacon and hams is about 10 per cent of the weight of the fresh pork. Considering this shrinkage it is evident that the total weight of pork, bacon and ham very nearly approximates that of the total quantity of pork killed in Government inspected abattoirs. About half of the mutton and lamb so killed passes through cold storage. The estimation of 72,000,000 pounds of mutton and lamb as consumed in Canada in 1916 is probably too high, as the tendency is apparently toward a decrease in the consumption of this kind of meat. The figures in column 21, that is the quantity of different commodities not the property of the firms storing received into storage by the cold storage warehouses, must be taken into consideration with column 2. It will be observed that 10,500,000 pounds of butter, 48,000,000 pounds of cheese, 6,000,000 dozen eggs, 16,000,000 pounds of beef and 1,500,000 pounds of fresh pork were thus stored. Some of this was the property of cold storage companies although much of it was stored for the convenience of the public.

It is obvious, therefore, that the cold storage companies are a very large factor in supplying the food market at home, but their control of the export trade is much more complete, even more so than the figures in column 11 would indicate—especially in the case of beef, mutton and lamb and cheese.

Practically all the meat exported is abattoir-killed beef, and is exported by the large abattoir companies, but as shown in note 8 above, many firms in their returns

did not distinguish between sales for export and for the home market, giving total sales only. Probably forty-five of the forty-seven million pounds of cheese "stored for others" was destined for export, being the property of wholesale dealers or other cold storage firms at the time stored.

Food becomes an article of commerce only in cases where it requires distribution before consumption. What proportion of the food raised in Canada is consumed by the producer it is impossible to calculate. It is estimated that one half of the total meat products of Canada is consumed either on the farm or locally in the villages and small towns, wherein the local butcher kills the cattle, supplies the village or town and sells from his cart as he passes through the surrounding country districts once or twice a week. With this comparatively simple system of distributing the abattoir and cold storage company has nothing to do. They supply to a limited extent the large towns, but particularly the larger urban centres, and the export market. Some of the largest meat companies have reached out to exploit the market in the smaller cities and towns through their retail stores, but the actual proportion of produce thus sold, compared with that sold by local dealers, is small. This does not apply however to bacon and ham. These are secured almost exclusively from the abattoir companies. The proportion of butter, cheese and eggs secured from the storage companies by the grocers in towns and small cities is small. Butter and cheese is supplied from the surrounding farming district or near-by creameries or cheese factories and eggs by the local produce dealer, who has either candled them or preserved them in some other manner. Many of such dealers have chilling rooms. The recent improvements in refrigeration enable the prosperous grocer to have at a comparatively small expense sufficient refrigerated space to enable him to purchase butter, cheese, and eggs in the early autumn to supply his winter trade. Few grocers thus preserve sufficient quantities for their whole winter's trade, but supplies for a few months at least are so kept by many.

The grocers and butchers of the larger cities depend greatly upon the cold storage companies (including abattoir companies) for their supplies of butter, eggs, cheese and meats. This means that the task of feeding the larger industrial and commercial centres of Canada is to a pronounced extent being assumed by the cold storage companies; just to what extent, the figures so far available do not show. In the course of the investigation concerning which this is a report, as part of it, and as a check upon the information supplied by the various cold storage companies, grocers' invoices were secured from all the larger grocers in the largest cities of the Dominion. It was discovered from these that practically all the bacon and ham sold by these grocers, a large proportion of the cheese, about one half of the butter and, during the period of the year from October to April a large proportion of the eggs, were purchased directly from the cold storage companies. The other sources of supply for the grocers are for butter the creameries; for cheese the wholesale dealers and in a few cases cheese factories; for eggs sometimes the wholesale dealers and sometimes farmers. Strictly fresh eggs are necessarily purchased directly from farmers, but in one instance a very high-class grocer in Toronto purchased "fresh laid eggs" from a cold storage company. These companies have of late undertaken to supply to dealers the most expensive lines of meat, butter, cheese and eggs, and this branch of their business is rapidly increasing. The manufacture of and trade in fancy cheeses by certain of such companies is now well established.

It is interesting to observe from the grocers' invoices the territory which is supplied by the different cold storage companies. Vancouver is supplied by the cold storage companies operating in the west and by wholesale merchants, except for the importation from eastern Canada of the special lines of cheese. This is also true of Regina and Calgary. Winnipeg, however, is supplied both by the western companies and by the largest companies of Ontario. The Toronto grocers are supplied largely

from local cold storage firms in Toronto and with butter, cheese and eggs by produce merchants in the smaller towns surrounding Toronto. A rather small proportion of eggs is received from Chicago. The larger Montreal grocers are supplied by the cold storage firms as far east as Hamilton and by produce dealers in the surrounding district.

The popular conception of cold storage establishments as immense warehouses where food is purchased in the spring and summer and hearded up until that period in the winter when the greatest scarcity prevails, then freed is, so fas as Canadian conditions are concerned, absolutely wrong. No such static state prevails. Even in the months of greatest scarcity of any particular commodity, the purchasing of such by the cold storage firms is not suspended nor in the months of greatest production is the selling of it suspended. Eggs are the most seasonal in character of all cold storage commodities. Hence the extreme variation by seasons in their price. Following is a record of the purchases and sales of eggs by one of the larger cold storage companies, situated at Vancouver, as made month by month during 1916. The quantities are given in round numbers (the exact numbers have been furnished) but the cost and sale prices are actual and exact. The example has been fairly selected and the test has been applied to eggs because if the popular conception were correct its correctness would be most likely to be disclosed by an analysis of egg purchases and sales. The test fails as respects eggs and more markedly as respects the other commodities.

	Egg Purchases, 1916.	Egg Sales.
January	2,000 doz. at 50c. a doz.	17,500 at 34c.
February	16,000 doz. at 33c. a doz.	18,500 at 37c.
March	13,000 doz. at 27c. a doz.	13,000 at 27c.
April	26,000 doz. at 16c. a doz.	11,000 at 38c.
May	180,000 doz. at 27c. a doz.	34,000 at 34c.
June	26,000 doz. at 26c. a doz.	37,000 at 29c.
July	36,000 doz. at 33c. a doz.	26,000 at 34c.
August	11,000 doz. at 37c. a doz.	34,000 at 33c.
September	14,000 doz. at 40c. a doz.	52,000 at 33c.
October	3,000 doz. at 45c. a doz.	24,000 at 39c.
November	154,000 doz. at 49c. a doz.	33,000 at 45c.

Average Cost Price per dozen during 11 months 30·9 cents.
Average Selling Price per dozen same period 35 cents.

The above figures show that the dealing in even the most seasonal commodities is not limited to certain months only. The fluctuations here between the quantities purchased and sold each month are very considerable. The fluctuation in purchases and sales of meats is very much smaller, that for beef being not more than 25 per cent above or below the average quantity purchased monthly per annum. The same is true of mutton and lamb. With regard to pork and particularly bacon, since the war time expansion of our export trade the period of sales is very largely influenced by the facilities of transportation.

It is possible now to see the real character of the work of the cold storage companies and their place in the economics of foods. As the primary collectors and distributors of the food of the country subject to commerce, that is not consumed on the farm or distributed locally by the butchers and grocers of the small towns, they compete with the produce dealer in the home market; they practically monopolize the export market; they purchase meat directly from the producer: manufacture the by-products put the meat through the necessary processes and control the sale of it. Eggs they buy directly from the producer or through local produce dealers. The butter is bought to some extent in this manner, and largely from the creameries,

cheese is of course purchased from the cheese factories. From the fact that their dealings are on such a huge scale, it is to be expected that the margin imposed on the food passing through hands will be small compared to that of the total margin between the price paid to the producer and the price paid by the consumer. The total profit may be and frequently is very large and in particular cases individual companies have taxed the food passing through their hands as highly as the grocer or small dealer, but the general trend of the cold storage business is toward a normal margin, frequent and flagrant as may be the exceptions to this rule. The truth of this statement is borne out by examination of the grocers' invoices, buying and selling. Some extracts from representative and reputable grocers' invoices are now submitted.

Record No. 1 is that of a grocer in Victoria, B.C.

Record No. 2 that of a grocer in Toronto.

NUMBER ONE—GROCERS' INVOICE.

Mdse. Purchased from Mills, Cold Storage, and Jobbers, during the month of April, 1917.

Commodities.	Cost Price.	Selling Price.
Eggs, Storage	36	40
Butter, Local Creamery	48–52	55–60
Butter, Creamery	41½	45
Butter, Special Creamery	46	50
Cheese	28¾	35
Bacon, Cold Storage Co.	30½	40
Bacon, Cold Storage Co.	36½	45
Bacon, Cold Storage Co.	40	45
Flour	10.80–13.00	11.40–12.60
Bread, 18 oz.	8	10
Eggs, Purchased from Private persons (not farmers)	30–40 advance of 5% per doz.	

Mdse., Purchased from Mills, Cold Storage, and Jobbers, during the month of December, 1916.

Commodities	Cost Price	Selling Price.
Eggs, Storage	3[illegible]	40
Eggs, Fresh	52–60	55–70
Butter, Local Creamery	48–52	55–60
Butter, Local Creamery	4	45
Butter, Dairy	33	35
Cheese (October purchase)	25½	30
Bacon, Cold Storage Co.	26	35
Bacon, Cold Storage Co.	31	40
Bacon, Cold Storage Co.	33	40
Flour	10.20–9.80	10.00 per sack 250.
Bread	8	10
Eggs, Purchased from private persons (not farmers)	65c. to 70c. advance of 5c. per doz.	

NUMBER TWO—GROCERS' INVOICE.

December, 1916.

Commodities.	Invoice Price from Cold Storage	Price Charged to Consumer.
Butter	45–49	50–55
Eggs	65	90–90
Cheese	25	30
Bacon	27–28	34–37

April, 1917.

Commodities.	Invoice Price from Cold Storage	Price Charged to Consumer.
Butter	45	55
Eggs (All April purchases made from firms and so'd at)		40–45 doz.
Cheese	27	32
Bacon	33	38–42

Invoices from the large grocers in Montreal show practically the same spread in price. The table of margins for cold storage houses is given a few pages further on from which it will be seen that the margin of the grocer very considerably exceeds that of the cold storage houses.

It is natural that the average wholesale prices for Canada of the different commodities is higher than the average selling prices of the cold storage companies in Canada, as these prices represent both those of the cold storage companies and the wholesale dealers, to whose prices another margin after that of the cold storage house has frequently been added. The average price received by the cold storage companies for butter in 1916 was 32·7 cents. The average wholesale price for Canada was 35 cents. Absolute comparison cannot be made of these figures because the average wholesale price for Canada is based on a specific class of butter, but the general comparison holds good. For instance, the average price which the investigation showed as received by the cold storage companies for cheese was 18·9 cents. The average wholesale prices for 1916, as worked out from the prices ruling daily throughout the year by the proper officers of the Labour Department, were as follows: Butter, creamery, Montreal, 35 cents; cheese, western, coloured, Montreal, 19·8 cents; eggs, fresh, Montreal, 39·5 cents; beef, hind quarters, 14·6 cents; pork, 14·7 cents; salt pork, 16·8 cents; mutton, 14·6 cents; ham, 21·2 cents; bacon, 23·7 cents. The wide difference between the wholesale and the cold storage prices of eggs is due to the fact that the average wholesale price is calculated from the price of fresh eggs during each month throughout the year. The average price of mutton is lower than that showed by the cold storage companies because lamb is included with the mutton in their reports. The foregoing figures cannot form the basis of an absolute comparison because the price of specified lines is recorded in the average wholesale prices, and the price of all qualities of each commodity is shown in the average prices worked out from the cold storage reports. Comparison can be made, however, in a general way. It is in the profit per pound or per dozen that the public is chiefly interested. That margin, if reasonable, will be cheerfully paid; if unreasonable its exaction, aside from all question as to the morality of food profiteering in time of war, is by the law pronounced criminal. A reasonable margin is as due the cold storage operator as it is due the farmer, the wholesaler or the retailer. It is the price which Canada pays for the preservation of her food supplies (*a*) for distribution from her large centres of production to her population in general and her urban population in particular, and (*b*) for export, so that she may compete with her excess supply, as a food purveyor, with other countries. It is the reward which Canada allows to those who perform for her the service of so conserving her food supply as to enable the use of the whole and the return of a fair yield in money therefor. Within it is included the price paid by the farmer for storing his excess production until the time of greater scarcity. He pays so that the fruits of his labour may be rendered an article of commerce and become a reliable source of revenue. The consumer pays to stimulate production so that he may be able to procure sufficient of the particular commodity at all seasons, at a nearly as possible stableized prices, and so that gluts and famines may alike be avoided. Have the margins exacted by the cold storage operators been unreasonable? There are two ways of discovering this: First, by applying the test of the averages of other years, second, by specific and expert examination of the records of actual operations. Both methods have been pursued, but it must be admitted that although much has been done the latter method has not been followed out as yet to the full extent desirable. The work is still proceeding. A table of margins with the average prices and the proportion of the total quantities sold by cold storage companies as shown for the years 1913 to 1916 is here appended and for home consumption.

TABLE II.

	Average cost per pound or doz.	Average Selling Price per pound or doz.	Percentage of total Amount sold as shown for export.	Percentage of total Amount sold as shown for Home Consumption.	Margin on Total.	Margin on Export.	Margin on Home Consumption.
			%				
Butter—							
1913.....	25·38	27·12	less 1	90	1·74	.....	.....
1914.....	25·0	27·0	" 1	80	2·00	.....	.....
1915.....	27·37	29·95	5	80	2·58	1·47	2·44
1916.....	30·83	32·73	12	70	1·9	0·57	2·39
Cheese—							
1913.....	12·78	13·21	85	12	0·43	0·24	1·61
1914.....	12·78	13·93	81	15	1·15	0·83	2·57
1915.....	14·46	14·89	81	14	0·39	0·08	1·73
1916.....	18·11	18·89	77	20	0·78	0·39	2·53
Eggs—							
1913.....	22·58	24·93	less 1	63	2·35	.....	.....
1914.....	23·96	26·46	4½	70	2·5	4·64	2·36
1915.....	22·31	25·98	18	60	3·67	5·73	3·19
1916.....	26·05	30·36	23	60	4·31	7·55	3·79
Beef—							
1913.....	8·96	10·02	2½	85	1·06	less 2·25	.....
1914.....	10·68	11·62	5	90	0·94	" 0·29	.....
1915.....	9·68	10·23	6	60	0·55	" 0·48	.....
1916.....	10·75	11·45	8	60	0·70	" 0·78	.....
Pork—							
1913.....	12·5	14·47	2	80	1·97	0·14	2·12
1914.....	12·09	13·45	20	70	1·36	0·83	1·58
1915.....	12·22	13·65	20	70	1·43	1·14	1·51
F.P.1916.....	14·84	15·67					
P. & S. P.							
1916.....	15·43	16·85	26	60	1·85	2·37	2·13
Bacon—							
1913.....	14·75	17·08	34	55	2·33	less 0·36	3·15
1914.....	13·56	16·04	60	30	2·48	2·17	2·34
1915.....	14·10	16·57	87	12	2·47	2·69	1·46
1916.....	15·76	20·34	90	8	4·58	4·49	3·97
Ham—							
1913.....	14·43	19·29	less 1	84	4·86	.....	.....
1914.....	14·84	17·85	12	80	3·01	0·85	2·9
1915.....	14·42	17·37	25	70	2·95	1·6	2·62
1916.....	19·20	21·32	15	70	2·12	less 2·39	3·72
Mutton & lamb							
1913.....	11·97	13·35	less 1	95	1·38	.....	.....
1914.....	13·08	14·29	" 1	95	1·21	.....	.....
1915.....	14·48	15·42	" 1	80	0·94	.....	.....
1916.....	16·80	17·41	" 1	90	0·61	.....	.....

It is desirable that the precise meaning attached to the word "margin" in this report should be very carefully noted. It represents gross, not net, profit on the commodity from the time it is laid down, all costs and expenses paid, in the storage warehouse. The questionnaires sent out to the various companies to secure specific information on margins demanded sworn testimony as to (*a*) the quantity of each commodity purchased during the year; (*b*) the cost of such laid down in warehouses including freight and unloading charges; and (*c*) the total quantity sold during the year and the total amount for which sold. The average cost prices and average selling

prices were computed. The difference between these is the margin referred to. The margin represents, therefore, the cost of storing, losses, interest on investment, overhead charges, any other expenses incurred by the cold storage company from the time the commodity enters the warehouse until it reaches the persons to whom they sell and the cold storage company's profit. It is the total charge imposed on the food from the time it enters the cold storage house until it passes into the hands of grocers or wholesale dealers. It will be observed that the margin on butter since 1913 has increased two cents per pound, on cheese 0·35 cents per pound, on eggs 0·96 cents per dozen. On beef it has decreased 0·12 cents, on bacon it has increased 2·25 cents, on ham it has decreased 0·76 cents. The export of butter has increased during the same period from less than 1 per cent of the total cold storage sales to 12 per cent. Although the proportion of cheese exported as compared with the total quantity sold by cold storage companies somewhat decreased, yet the total amount of cheese exported from Canada according to the Trade and Commerce returns during the 1913-1916 period increased from approximately 155,000,000 pounds to 169,000,000 pounds. This has, of course, directly affected the price of cheese to the cold storage companies. The export of eggs by cold storage companies has increased during the same period from less than 1 per cent to 23 per cent. The export of bacon has increased from 24 per cent to 91 per cent. The commodities which have been exported in the greatest quantities show the greatest increase in prices and in margin. It has been already claimed herein that the export demand has been responsible for most of the advances in domestic prices.

It becomes necessary now to introduce another table of average costs and selling prices.

TABLE III.

	Average Cost Prices per lb. or doz. of Commodities.				Average Selling Prices per lb. or doz. of Commodities.			
	1913	1914	1915	1916	1913	1914	1915	1916
Butter	25·38	25·0	27·37	30·83	27·12	27·0	29·95	32·73
Cheese	12·78	12·78	14·46	18·11	13·21	13·93	14·85	18·89
Eggs	22·58	23·96	22·31	26·05	24·93	26·46	25·98	30·36
Beef	8·96	10·68	9·68	10·75	10·02	11·62	10·23	11·45
Pork	12·5	12·09	12·22	14·84	14·47	13·45	13·65	15·67
Pork and Salt Pork				15·0				16·85
Bacon	14·75	13·56	14·1	15·76	17·08	16·04	16·57	20·34
Ham	14·43	14·84	14·42	19·20	19·29	17·85	17·57	21·32
Mutton & Lamb	11·97	13·08	14·48	16·8	13·35	14·29	15·42	17·41

	Average Selling Prices per lb. or doz. of Commodities for Home Consumption.				Average Selling Prices per lb. or doz. of Commodities for Home Consumption.			
	1913	1914	1915	1916	1913	1914	1915	1916
Butter			28·84	31·4			29·81	33·22
Cheese	13·02	13·61	14·54	18·5	14·39	15·35	16·19	20·64
Eggs		28·6	28·04	33·6		26·32	26·5	29·84
Beef	6·71	10·39	9·20	9·97				
Pork	12·64	12·92	13·36	16·82	14·62	13·67	13·73	15·74
Pork & Salt Pork				17·37				17·13
Bacon	14·39	15·73	16·79	20·25	17·9	15·9	15·56	9·73
Ham		15·69	16·02	16·81		17·74	17·04	22·92
Mutton & Lamb	13·83	12·31		16·81				

Table No. 3, immediately preceding, has been added to show the average price paid by the cold storage companies for each commodity for each year from 1913 to 1916 and their average selling price of such commodity. But incidentally, the cost price for each of the different years as supplied by such companies is the best record available of the prices paid to farmers for their produce. It will be observed by comparison of Tables 2 and 3 that the margin which the cold storage companies put on food products varies on butter from 1·74 cents per pound to 2·58 cents per pound in 1915, and 1·9 cents per pound in 1916; on cheese from ·43 cents per pound in 1913 to 1·15 cents per pound in 1914, and ·78 cents per pound in 1916; on eggs from 2·35 cents per dozen in 1913, on a steady rise, to 4·31 cents per dozen in 1916; that the margin on beef shows a decline from 1·06 cents per pound in 1913 to ·7 cents per pound in 1916; on pork from 1·9 cents per pound to ·36 cents per pound in 1914 and to 1·85 cents per pound in 1916; on bacon a rise from 2·33 cents per pound in 1913 to 4·58 cents per pound in 1916; on ham a decline from 4·86 cents per pound in 1913 to 2·12 cents per pound in 1916; and on mutton and lamb a decline from 1·38 cents per pound in 1913 to ·61 cents per pound in 1916. In spite of these fluctuations, which in eggs and bacon particularly are abnormal, it is the price paid to farmers which has shown the original and most important ascent. Because of the varying distances of the farmers from the markets which they supply, it is not possible to say with accuracy the charge on the produce from the time it leaves the farmer's hands until it reaches the cold storage warehouses. Throughout southern Ontario, however, and as far east as Montreal, the charges are as follows: The buyer for the cold storage companies is paid 1 cent per dozen for buying eggs, ¼ cent per pound for cheese, and ½ cent per pound for butter. The freight on eggs is 25 cents to 30 cents per case of 30 dozen; on cheese it is ¼ cent to ¾ cent per pound, and it is ¼ cent to ¾ cent per pound on butter. But subtracting these items from the cost price shown by the cold storage companies we arrive at the price paid the farmers. It would, however, be misleading to use this as a basis of calculating the average price paid to farmers in Canada. Conditions vary with the localities. But as these charges are fixed, and have not appreciably increased since the war, the increase in the price received by the farmer from the cold storage buyer can be calculated. The following is a table comparing the increase in the cost and the increase in the selling prices since 1913:—

INCREASE OF MARGINS OF FARMERS AND COLD STORAGE COMPANIES.

Commodities.	Cost per lb., 1913, to companies.	Increase in cost per lb., 1913, to 1916 to companies.	Selling price per lb.	Increase in selling price per lb., 1913 to 1916.	Difference in profit to companies 1913 and 1916.
	Cents.	Cents.	Cents.	Cents.	Cents.
Butter	25·38	5·47	27·12	5·61	0·14 plus
Cheese	12·78	5·33	13·21	5·68	0·35 plus
Eggs	22·58	3·47	24·93	5·43	1·96 plus[1]
Beef	8·96	1·79	10·02	1·43	0·36 minus
Pork	12·5	2·34	14·47	2·38	0·04 plus
Bacon	14·75	1·01	17·08	2·25	1·25 plus[2]
Ham	14·43	4·77	19·29	2·03	2·40 minus[2]
Mutton and Lamb	11·97	4·83	13·35	4·06	0·77 minus

NOTE 1.—In partial justification of cold storage companies generally it is necessary to state that the war time advance in average profits on eggs, shown in the preceding table, has been greatly influenced by excessive profits derived by two particular companies, one a very large operator, the other a smaller. Particulars will appear later, herein. The average advance in the profits of cold storage companies between 1913 and 1916, exclusive of these two companies, is 1·2 cents per dozen. While some allowance must be made for the greater expense of doing business even this general advance in profits seems high.

NOTE 2.—The proportion of ham dealt in, as compared with bacon, is small. See Table I. Sales of ham by cold storage companies approximated 14,000,000 pounds in 1916 and sales of bacon 150,000,000 pounds. Since the war the energies of the various companies seems to have been directed to the increase of production of bacon, the figures show in 1913 an average margin

The decrease in the margin on ham is not very significant as affecting the total profits of cold storage companies, as only about fourteen million pounds of ham out of an approximate total of four hundred and sixty million pounds of meat were sold by cold storage companies in 1916, and comparison with the records of previous years shows that the quantity sold from cold storage has very slightly increased. The same statement applies to mutton and lamb. Table I shows that about twelve and a half million pounds of mutton and lamb were sold in 1916, and Table V shows that the proportion of mutton and lamb sold in 1916 as compared with 1913 has actually decreased. The margin on beef has decreased, while the output since 1913 has increased. This decreased margin is, however, offset by the soaring prices which the by-products have been bringing. But the public has derived the benefit from this; the price of beef has increased less than that of any other meat since the beginning of the war. In the result, therefore, the only wide divergence shown between the increased revenues derived by producers and cold storage companies respectively applies to eggs and bacon. The disproportionate increase received by the cold storage companies as respects these commodities would be justified if storage costs had correspondingly increased but the figures submitted by the various companies for the last four years do not evidence a sufficient rise in storage costs to bridge this gap, so the cause must be looked for elsewhere, and found. The rise in the price of bacon in 1916 was clearly a result of a practical monopoly brought about by a huge and unprecedented export trade demand.

(seemingly excessive) of between four and five cents per pound derived by the various companies from ham. In 1916 the average margin in that commodity dropped to a more reasonable figure and a higher, and in my judgment, unjustifiable profit is being derived from bacon, the sales of which, by cold storage companies have, since 1913, increased more than twelve fold. This tremendous increase of turnover ought to have resulted, notwithstanding increased costs of doing business, in a reduction of gross profit instead of an increase, and I venture to predict that the expert examination of the books of the companies whose names I shall supply for the purpose will so establish.

TABLE IV.——Analysis of business done by the ten largest Cold Storage Companies in Canada, Jan. 1-Dec. 1, 1916.

	Butter.				Eggs.				Cheese.			
	Lbs.	$	Average.	Margin.	Lbs.	$	Average.	Margin.	Lbs.	$	Average.	Margin.
I. Bought	3,276,126	969,794	29·60		1,514,340	435,301	28·74		757,232	148,011	19·54	
Sold	2,930,864	960,831	32·78	3·18	1,383,531	422,837	30·56	1·82	654,954	140,955	21·52	1·98
II. Bought	5,162,576	1,537,564	29·78		5,989,121	1,619,852	27·04		1,819,458	300,374	16·50	
Sold	5,024,287	1,650,102	32·84	3·06	5,896,209	1,799,427	30·51	3·47	1,767,056	337,515	19·10	2·6
III. Bought	482,705	145,391	30·12		297,032	77,150	25·97		74,394	14,255	19·16	
Sold	449,670	149,979	33·35	3·23	244,952	76,794	31·35	5·38	76,923	16,048	20·86	1·7
IV. Bought	4,175,090	1,290,482	30·90		2,801,035	715,940	25·55		3,925,154	769,539	19·60	
Sold	3,899,631	1,241,053	31·82	0·92	2,606,199	766,205	29·4	3·85	3,788,569	756,390	19·96	0·36
V. Bought	2,622,427	797,608	30·41		1,908,207	500,381	26·22		517,710	90,608	17·50	
Sold	2,610,625	838,354	32·11	1·7	1,707,115	510,103	29·88	3·66	498,464	94,219	18·90	1·40
VII. Bought	397,048	129,001	34·75		182,490	51,438	28·18		226,165	39,896	17·64	
Sold	283,842	98,380	34·66	0·09 less	77,430	23,161	29·92	1·74	37,881	5,902	15·58	2·06 less
VIII. Bought	1,585,192	517,214	32·62		.....	.....	.....	.....	16,691,365	2,987,296	17·89	
Sold	1,605,240	529,671	32·99	0·37	.....	.....	.....	.....	15,056,075	3,078,372	20·44	2·55
IX. Bought	6,083,508	1,890,380	31·07		6,413,673	1,613,438	25·15		2,632,618	461,455	17·52	
Sold	5,547,768	1,748,616	31·51	0·44	5,566,505	1,804,948	32·42	7·27	2,489,351	464,890	18·67	1·15
X. Bought	5,037,366	1,656,708	32·88		.....	.....	.....	.....	37,704,501	6,838,656	18·13	
Sold	4,541,071	1,536,746	33·84	0·96	.....	.....	.....	.....	35,669,173	6,565,617	18·41	0·28
XI. Bought	1,349,983	442,225	32·75		1,622,200	429,144	26·46		581,074	123,319	21·22	
Sold	1,285,712	454,959	35·38	2·63	1,549,889	463,509	29·90	3·44	700,495	133,450	19·05	2·17
Abattoirs—												
Bought	22,860,298	6,951,038	30·40		19,105,898	5,013,500	26·24		9,953,731	1,831,128	18·4	
Sold	21,576,359	6,945,029	32·19	1·79	17,481,941	5,403,475	30·91	4·67	9,253,098	1,816,318	19·54	1·14
Export Houses—												
Bought	8,027,208	2,945,029	32·79		1,622,200	429,144	26·45		54,976,930	9,939,271	18·08	
Sold	7,486,660	2,538,234	33·90	1·11	1,549,889	463,510	29·91	3·46	51,425,743	9,778,639	19·01	0·93
Total of Above—												
Bought	30,887,506	9,583,197	31·02		20,728,098	5,442,644	26·25		64,593,661	11,770,409	18·22	
Sold	29,063,027	9,482,263	32·62	1·6	19,031,830	5,866,985	30·82	4·57	60,718,841	11,594,967	19·09	0·87
Total for all Cold Storage Plants of Canada—												
Bought	46,561,063	14,358,160	30·83		28,122,683	7,326,214	26·05		76,806,324	13,908,000	18·11	
Sold	43,867,720	14,359,430	32·73	1·9	26,410,199	8,018,002	30·36	4·31	72,638,890	13,713,058	18·89	0·78

TABLE IV.—*Continued.*

	Beef.				Fresh Pork.				Salt Pork.			
	Lbs.	$	Average.	Margin.	Lbs.	$	Average.	Margin.	Lbs.	$	Average.	Margin
I. Bought	31,945,941	3,283,298	10·26		130,600	20,139	15·42		18,953,937	2,863,569	15·10	
Sold	29,592,449	3,549,762	11·99	1·73	136,092	22,617	16·61	1·19	18,903,781	2,992,646	15·83	0·73
II. Bought	14,521,107	1,447,374	9·96						24,985,554	3,594,973	14·39	
Sold	12,480,073	1,466,525	11·75	1·79					18,659,918	3,599,386	19·24	4·85
III. Bought	1,711,848	188,324	11·00		1,541,781	2,205,952	13·35					
Sold	1,631,486	194,031	11·89	0·89	1,573,518	241,508	15·34	1·99				
IV. Bought	57,573,031	5,654,515	9·82		38,688,900	5,572,178	14·40		15,300,416	2,725,213	17·81	
Sold	53,410,434	5,582,336	10·45	0·63	26,187,800	4,373,030	16·69	2·29	15,863,863	2,840,136	17·90	0·09
V. Bought	7,251,850	753,832	10·39		8,324,051	1,236,495	14·73					
Sold	7,040,632	841,049	11·94	1·55	8,109,795	1,295,207	15·97	1·24				
VII. Bought	4,337,176	492,555	11·36		17,783,909	2,728,485	15·34					
Sold	3,887,541	433,383	11·15	0·21 N. less	11,149,896	1,840,714	16·50	1·16				
VIII. Bought												
Sold												
IX. Bought	22,232,988	2,373,421	10·67		8,602,511	1,295,069	15·05					
Sold	16,514,231	1,923,124	11·64	0·97	3,732,606	607,247	16·27	1·22				
X. Bought												
Sold												
XI. Bought												
Sold												
Abattoirs—												
Bought	139,623,941	14,193,319	10·17		74,990,563	11,060,463	14·74		59,239,907	9,183,755	15·50	
Sold	124,558,843	13,999,231	11·24	1·07	50,890,436	8,380,460	16·46	1·72	53,427,562	9,362,971	17·52	2·02
Export Houses—												
Bought												
Sold	574,829	71,489	12·44									
otal of Above—												
Bought	139,623,941	14,193,319	10·17		74,990,563	11,060,463	14·74		59,239,907	9,183,755	15·50	
Sold	124,558,843	13,999,213	11·24	1·07	50,890,436	8,380,460	16·46	1·72	53,427,562	9,362,971	17·52	2·02
Total for all Cold Storage Plants in Canada—												
Bought	189,952,154	20,425,417	10·75		113,125,331	16,789,800	14·84		45,723,503	7,009,367	15·43	
Sold	170,472,195	19,522,000	11·45	0·7	69,629,564	10,909,161	15·67	0·81	54,056,692	9,927,020	18·36	2·93

Abattoirs.	Lb.	$	Average.	Margin.
Fresh and smoked pork.....	134,230,470	20,244,218	15·07	
	104,317,998	17,743,431	17·01	1·94
Total Canada.....	158,848,834	23,799,167	15·00	
	123,686,256	20,836,181	16·85	1·85

TABLE IV.

Analysis of the Business Done by the Ten Largest Cold Storage Companies in Canada, January 1–December 1, 1916.

	Bacon.				Ham.				Mutton and Lamb.			
	Lb.	$	Average.	Margin.	Lb.	$	Average.	Margin.	Lb.	$	Average.	Margin.
I. Bought	95,950	23,888	24·89		94,550	21,968	23·33		2,944,992	543,895	18.46	
Sold	100,940	26,402	26·15	1·26	96,628	23,477	24·29	1·06	2·647,721	510,709	19.46	1.17
II. Bought									866,281	127,543	14.73	
Sold									964,228	148,444	15.39	0.66
III. Bought	414,056	73,695	17·79		1,267,104	206,071	16·26		169,243	29,135	17.27	
Sold	402,447	85,287	21·19	3·4	1,079,883	200,329	18·56	2·3	107,509	20,024	18.62	1.35
IV. Bought									4,585,989	699,791	15.26	
Sold									4,022,994	665,464	16.29	1.03
V. Bought	49,235,557	7,128,476	14·47		2,845,017	383,816	13·48		344,781	52,384	15.29	
Sold	42,468,183	7,665,571	18·03	3·65	2,657,458	534,062	20·09	6·61	424,877	71,861	16·91	1·62
VII. Bought	1,554,020	302,607	19·47						183,492	29,975	16·33	
Sold	1,387,023	292,239		1·6					176,083	28,094	15·95	0·38
VIII. Bought												
Sold												
IX. Bought	65,307,154	10,681,590	16·35		1,319,966	196,718	14·90		2,887,607	468,727	16·23	
Sold	97,791,019	20,929,442	21·40	5·05	938,807	185,994	19·81	4·91	2,443,729	404,899	16·56	0·33
X. Bought												
Sold												
XI. Bought	5,554,128	1,005,523	18·10		1,515,761	322,994	21·30					
Sold	5,428,620	1,057,206	19·47	1·37	1,606,435	374,860	23·33	2·03				
Abattoirs—												
Bought	116,406,737	18,201,256	15·65		5,526,737	908,573	16·43		11,982,385	1,951,450	16·29	
Sold	142,150,607	28,899,041	20·32	4·69	4,772,776	953,862	19·98	3·55	10,787,141	1,839,515	17·06	0·77
Export Houses—												
Bought	5,554,128	1,005,523	18·10		1,515,761	322,994	21·31					
Sold	5,428,620	1,057,206	19·47	1·37	1,606,435	374,860	23·33	2·02				
Total of Above—												
Bought	121,962,865	19,215,779	15·75		7,042,498	1,231,567	17·61		11,982,385	1,951,450	16·29	
Sold	147,579,227	29,956,247	20·29	4·54	6,379,211	1,328,722	20·82	3·31	10,787,141	1,839,515	17·06	0·77
Total for all Cold Storage Plants of Canada—												
Bought	125,605,312	19,795,040	15·76		14,383,485	2,761,676	19·20		13,609,605	2,286,939	16·8	
Sold	151,309,429	30,787,823	20·34	4·58	14,390,367	3,067,809	21·32	2·12	12,666,380	2,205,229	17·41	0·61

Table IV, now appended, is an analysis of the operations of the largest cold storage companies. The contents of this table will be more critically examined at a later stage, but a glance at it now will partially clarify the point being considered.

The policy has been pursued throughout the series of reports of which this is one of avoiding publication of names. When necessary the names can be had from the departmental files. It has not been considered desirable that competitors should be apprised of their respective items of costs and prices. Therefore, the table now provided will use numbers to indicate the different companies. The same numbers will be applied throughout to the same companies.

It appears that 5,565,505 dozen eggs were sold by Company No. IX at a margin of 7·27 cents per dozen. One branch of this company bought, in 1916, approximately four million dozen eggs at 24·8 cents per dozen (average cost of year's purchases) and sold three and a half million dozen at 34·7 cents per dozen (average selling price for the year). This company is located in central Ontario. That section of the country seemed to be fortunate or unfortunate according to one's viewpoint, for nearby cold storage company (no zone company this, but a small independent entrepreneur) bought in the same year approximately five hundred thousand dozen eggs at 24·4 cents and sold them at 36·3 cents. This proves that among the smaller cold storage companies, the spirit at least is willing where profits are concerned.

Other cold storage dealers made as much as 5 or 5·5 cents margin in eggs, but normally the margin was from 3 to 4 cents per dozen. By subtracting the two abnormal transactions above noted from the total 1916 egg transactions of the cold storage companies, it will be found that the average margin of the companies exclusive of these two is 3·6 cents instead of 4·3 cents.

In view of the enormous turnover, however, it would seem that this profit is still excessive.

The just character of a margin on any commodity is dependent upon (1) the expenses incurred in storing, handling and selling such commodity, (2) the demand for the commodity for export and for home consumption, and (3) the general condition of the market, so far as it affects replacement values. Storage handling and selling costs have risen somewhat but they are comparatively a fixed non-fluctuating charge. Because of the heavy demand for butter in 1915, and because the prices paid to farmers had not caught up with wholesale and export prices (the benefit of a rising market is generally late in reaching the farmers), the cold storage companies made a margin in 1915 of 2·58 cents on butter. In 1916 the cost to cold storage companies had risen to correspond to wholesale and export prices. Storage and other costs for cheese in 1914 were not appreciably advanced but the margin made by cold storage companies on cheese was 1·15 cents per pound, whereas in 1913 it was 0·43 cents. The wholesale price was rising much more rapidly than the corresponding price paid to the farmer. It is evident that the second and third elements in margins are those by which such speculative profits as are made are enabled.

The storage costs for different commodities vary widely because of different refrigeration temperatures required by different commodities and the amount of care in handling necessary. Eggs naturally incur the highest storing charges, as great care in refrigeration is required, and boxing and packing are necessary. Also as respects eggs, losses through breaking are high. The charges on pork and pork products are also high because of the varying processes to which they are subjected. On beef and mutton and lamb these charges are low as also on cheese.

No specific data is given upon the point of storage costs, because it is believed that a special investigation is required into the value of the by-products of meat, and that some compulsorily applicable cost accounting system of storage and other costs on specific commodities should be established. The present storage charges are such as are arbitrarily fixed by the different companies and levied against their commodities. The existing intricate system of storage charging can best be investigated at

the same time, and possibly a legal scale of charges can thereafter be established. The project of providing such an expert examination is under way.

With regard to prices charged for commodities sold for home consumption, the figures shown in Tables II and III are illuminating in more than one sense. We have been paying more for most of our food for domestic consumption than the allies to whom we are exporting. This was not the result of patriotism, but something quite different. The allies at the same time were paying higher for eggs, pork and bacon. Because some companies were unable to supply data as to the quantity of food sold for export and for home consumption respectively, the average prices shown for home consumption and for export do not always tally with the average for the total quantity sold, but these averages are nevertheless reliable for comparison of export and home prices. The prices in the home market exceeded those in the export market in 1916, for butter, by 1·82 cents per pound; for cheese, by 2·14 cents per pound; for beef, by 1·24 cents per pound; for ham, by 6·11 cents per pound. For eggs, pork, and bacon the prices for home consumption were less than for export; eggs, by 3·76 cents per dozen; pork, by 1·08 cents per pound; and bacon, by 0·48 cents per pound.

The following consideration must be borne in mind as primarily affecting this relation between home and export prices; if the bulk of any one commodity is sold at home then it is with relation to the home market that the price is fixed, and, incidental to the price, the margin; if it is sold for export it is on the export market that the price is based. This is borne out by the figures shown in tables II and III. A comparatively small amount of beef is exported; that which is exported is shown to be sold at less than the average price for the year. One reason for this is that much of the frozen beef exported was purchased the previous year at a lower price. The excessive demand for bacon by the Allies has enhanced the price for fresh pork as well, the export of fresh and salted pork having almost doubled since 1913. The export price of eggs sold by cold storage companies has always been higher than that for home consumption, because a very much higher quality is required for export than the average quality of such. Butter and cheese for export incur much lower selling and distributing costs than do such commodities sold for home consumption. Whether this is sufficient to explain the difference in prices can only be proved by a special investigation of a character which the present purpose does not call for.

The proportion of the nation's food, both for its own use and for export passing through cold storage, has already been shown. It is proposed now to indicate a possible danger incident to an over-centralization of control, especially of meat products. The part which "Big Business" can play in this connection is analogous to that which the large railway companies played in the United States before the establishment of the Interstate Commerce Commission. An amalgamation of three or at most four of the largest dealers in a specific commodity could control more than half of the total quantity of that commodity, which passes through cold storage in Canada, except in the case of butter, which is subject to more varied competition. With regard to some commodities two companies only control more than half of the total quantity passing through cold storage, and a practical monopoly of one of the commodities by one company developed in 1916.

Table IV shows the details of the transactions of the ten largest companies, including seven of the large meat concerns, and of the three largest export houses. One of the largest abattoirs has been omitted from this table, because the records did not show the different kinds of meat separately; its relation to the meat situation will be shown later. (The abattoir houses whose records are here given, are with one exception zone companies whose operations have been already described. Of the export houses two are located in Montreal; the other although dealing particularly in dairy products has a zone organization.) The proportion of food products controlled by this limited number of firms is shown in Table IV. Of the 44 million pounds of

butter sold through cold storage companies in 1916, 29 millions were held by those ten companies, five and a half million pounds being sold by one company alone and four and a half million by one other company. The great abattoir houses which control the marketing of Canadian meat, sell 22 out of this 44 millions. Their general margin on butter is higher than that of the export houses, but lower than the average margin of all cold storage companies in Canada. Of butter only is this true. Of the 26 million dozen eggs sold by all the cold storage companies of Canada in 1916 the seven large abattoir companies sold 17½ million dozen. The average margin of the ten companies is 4·57, of the seven abattoir companies alone 4·67, the general average of all cold storage companies of Canada being 0·36 cents a dozen lower than that of the seven largest companies, although it is largely these companies which contribute to this high margin. Three companies alone sold approximately 14 million dozen eggs in 1916 or 53 per cent of the total cold storage output. Attention has already been directed to the undue profit of 7·27 cents a dozen on 5,566,505 dozen eggs sold by Company No. IX. The cheese situation is unique, two companies alone sold over 50 million of the total 72 million pounds sold by all the cold storage companies of Canada in 1916. Forty-nine of this 50 million pounds went for export. Approximately 56 million pounds were sold by all the cold storage companies of Canada for export. These two companies therefore exercise a virtual monopoly of the cold storage export business in cheese. They are both of course Montreal firms. The larger firm shows a very moderate profit, much lower than the average for all cold storage companies of Canada. The smaller of these firms shows a lower cost price, the higher margin being due to the fact that a much larger proportion was sold for home consumption. In connection with this it is asserted by some of the larger cheese dealers that for a short time cheese factories and produce dealers attempted to carry their own export trade without the mediation of these two companies, but found that they received more satisfactory remuneration by dealing through these two companies. The average export selling price of the larger of the two companies for 1916 was 18·37, of the smaller 18·96. One other cheese company of the central part of southern Ontario sold 9,870,064 pounds of cheese in 1916. The bulk of this was for home consumption. Thus the total sales of three companies in cheese cover 70½ millions of the total 72½ million pounds of cheese sold by all the cold storage companies of Canada during last year.

The centralization of the control of beef in the hands of a few companies is even more marked than is the centralization of the control of cheese and eggs. Of the 170 million pounds of beef that passed through cold storage last year, 124 million pounds were controlled by the seven largest abattoirs, 99½ million pounds were sold by three companies only and 113 million pounds by four companies only. Over 60 million pounds of the total 189 millions passing through the hands of cold storage companies was sold by branches of American companies. These companies sold at a smaller margin than the Canadian companies, and almost their entire output was sold in Canada for home consumption. The margin of Company No. IV which is the largest single dealer in beef, has the greatest influence in lowering the general margin on beef, and is lower than the general margin for Canada. The aggregate margin of the large companies exceeds that of the general margin in beef, as in the other commodities where the control of such is in the hands of a very few companies.

Fresh pork and salt or smoked pork have been separated in the table. The concentration of this meat in the hands of a few companies is almost as striking as in the cases of the other commodities mentioned, the margin of the seven abattoirs for fresh pork being larger than the common average. The same holds true of the totals for fresh and smoked pork, the margin of the large abattoirs being 1·94 cents per pound, the common margin for cold storage being 1·85; this in spite of the fact that the large abattoir has a very real advantage over the smaller, because of the former's superior facilities for developing by-products.

With regard to bacon we find one company selling 97 millions of the total 1916 cold storage sales of 151 million pounds at a margin of 5·05 cents per pound. The margin of the same company the previous year was 3·67 cents on 57½ million pounds. There is no evidence of correspondingly increased storage or other costs. Ninety-four million pounds at least of the sales of 1916 were for export. The margin of 3·67 was sufficient, satisfactory and profitable in 1915. Why not in 1916? Company No. V it will be observed sold 42½ million pounds of bacon. Its margin was 3·56 cents per pound. The margin of its competitors was small. They were, however, feeding the home market. Its need was not so great. This bacon situation is in a class by itself and will stand some explaining; the export price being away above the domestic. The records have been searched thoroughly for the four past years, but no comparative example can be found. Companies Nos. IV and IX indeed have been competitors. The bacon sales in 1915 were some 29 million pounds. These quantities in the case of both companies were almost entirely for export. Company No. V sold 29 million pounds at 14·4 cents per pound, a margin of 1·2 cents per pound, while company No. IX sold 57½ million pounds in the same year 1913, at 17·63 cents per pound at a margin of 3·67 cents per pound. The dealings of Company No. V afford the nearest comparative example to the dealings of Company No. IX in any commodity reported that can be cited, but the dealings of Company No. V bear all the marks of average trading. Table number II shows the common margin in 1915 as 2·47 cents. Company number V is much nearer the common margin in 1916 than company No. IX. It will be noted that it is very largely the figures of the latter company which make the common margin so high. Subtracting the transactions of Company No. IX from those of all the cold storage companies of Canada, the average cost of bacon for 1916 is 15·1 cent per pound and the average selling price for the same year is 18·4 cents per pound, leaving the average margin 3·3 cents per pound.

It will be observed that the sales of bacon of companies V and IX together cover 140,000,000 of the 151,000,000 pounds of bacon which were sold by all the cold storage companies of Canada during 1916. The total exports from all Canada according to the computations of the Trade and Commerce Department were for the same year 169,000,000 pounds. Possibly no more striking example of a monopoly of any one commodity can be cited from the trade records of any country supplying the Allies with food. These two companies are here mentioned together, but a distinction between their operations has already been clearly drawn with regard to their margins and the proportion of the quantity sold which was controlled by the respective companies. The cause which led to this unprecedented situation is not far to seek. The basis of a monopoly in this commodity existed before the war and the extraordinary conditions since have enabled its progressive development.

The following is a table showing the exports of the various commodities for the different years:—

EXPORT PRODUCE OF CANADA. FISCAL YEARS.

Commodity.	1913. Amount. Lbs.	1914. Amount. Lbs.	1915. Amount. Lbs.	1916. Amount. Lbs.
Butter	828,323	1,228,763	2,724,913	3,441,183
Cheese	155,216,392	144,478,340	137,601,661	168,961,583
Eggs	147,419	124,002	3,592,899	7,898,322
Bacon	36,212,190	23,859,754	76,801,419	144,918,867
Beef	1,570,979	13,133,205	18,828,257	47,422,564
Ham	.....	.....	.....	8,732,857
Mutton	45,914	65,167	1,064,963	99,593
Pork	521,533	1,811,204	21,288,226	1,990,856

As the table covers the fiscal years, the quantity of bacon shown as exported in the fiscal year, April 1, 1915, to March 31, 1916, is less than that shown in the period January 1, 1916, to December 1, 1916, covered by this report. The increase in exports

of bacon is, however, strikingly evidenced by these figures. They show an increase from approximately 36,000,000 pounds in 1913 to 145,000,000 pounds in 1916. The increase extends to 170,000,000 pounds for the period January 1 to December 1, 1916, as shown by the figures procured upon the present investigation.

The quantity of bacon sold by company No. IX was approximately, in 1913, 85,000 pounds at a margin of 3·63 cents per pound; in 1914, 14,000,000 pounds at a margin of 3·6 cents per pound; in 1915 nearly 60,000,000 pounds at a margin of 3·67 cents per pound, and in 1916 nearly 100,000,000 pounds, at a margin of 5·05 cents per pound.

The operations of company No. V for the various years are as follows. In 1913 approximately 4,000,000 pounds of bacon were sold at a margin of 2·02 cents per pound. In 1914 more than 9,000,000 pounds were sold at a margin of 1·3 cents per pound. In 1915 nearly 30,000,000 pounds were sold at a margin of 1·2 cents per pound, and in 1916 more than 40,000,000 pounds at a margin of 3·5 cents per pound. More than 53,000,000 pounds were sold by Company No. IX for export in 1915 and more than 20,000,000 pounds by company No. V. About 5,000,000 pounds were sold by company No. V for export in 1914 and at least 12,000,000 pounds by company No. IX. It is obvious therefore that the basis of a monopoly of this commodity existed before the war. In 1914 these two companies exported more than half the total bacon exported by Canada. Their control of the bacon situation has been much strengthened since. In 1916 when the total exports for Canada had more than doubled, one of these companies exported 60 per cent and the other company nearly 20 per cent of the total export.

The relation between the export trade and the growth of these two companies is quite evident. It is also worthy of remark that the relative proportion of business handled by them remains about the same. Company No. IX sold approximately twice as much bacon as company No. V in each of the years 1914, 1915, 1916, but whereas the business of company No. V has increased since 1913 by approximately 38,000,000 pounds that of company No. IX has increased by approximately 96,000,000 pounds.

It has been stated that the export trade done by the cold storage companies of Canada is almost entirely controlled by the larger companies. The extent of such control over cheese and bacon has already been shown. The same tendency is evident in the export trade in the other commodities. Eighty-five per cent of the butter exported by all the cold storage companies of Canada was exported by four of the large companies, a partial analysis of whose business appears in table IV. This represents approximately one-half of the total exports as reported by the Trade and Commerce Department for that period. Nearly five million of the total six million dozen of eggs exported by all the cold storage companies were exported by four of the large companies. Eleven of the total fourteen million pounds of beef exported by all the cold storage companies was exported by four companies, and half of the latter quantity was sold by one firm alone. Practically all the ham sold for export was sold by two companies. The quantity of mutton and lamb which is shown as sold for export in table I by all the cold storage companies is very small.

Some competition is provided, however, by the smaller companies. In 1916 one abattoir company whose operations are not reported in Table IX sold over eight million pounds of beef and exported three million pounds. One of the smaller cold storage companies situated between London and Toronto, Ontario, sold half a million dozen eggs for export at a margin of 12 cents per dozen.

The fact that the food sold from cold storage for export is in the hands of a very few companies is sufficiently evident. This situation it may be possible to turn to use. In the event of necessity of national control of exports, export prices or export buying, the concentration of the major part of the trade in foodstuffs in the hands of a

few companies will greatly facilitate such control. As to the advisability or otherwise of state action of this kind, it is a matter of policy and beyond the sphere of the present inquiry. It would come about, if at all, as a war measure, and in case of its being considered the course and fate of "big business," such as referred to, during the war should be studied and known. For this reason is appended a table showing the quantity of butter, eggs, beef, pork, bacon, ham, mutton and lamb sold in each of the years 1913-16 by the companies whose trade is analyzed in Table IV, except that a summary of the dealings of company No. VIII is omitted because its report is defective, for the present purpose, as respects one of the four years' business.

TABLE SHOWING THE GROWTH OF "BIG BUSINESS" IN FOOD 1913-1916.

——	Butter.	Eggs.	Cheese.	Beef.	Pork.	Bacon.	Ham.	Mutton and Lamb.
1913	19,674,301	14,387,349	52,930,179	92,189,537	51,394,737	10,207,862	2,692,275	8,626,733
1914	20,081,001	13,216,040	55,739,788	93,467,345	69,467,345	37,142,015	6,851,354	9,418,649
1915	20,967,475	20,021,791	69,152,022	102,810,257	96,952,859	102,391,429	8,004,909	9,489,015
1916	28,779,185	18,972,476	60,680,960	60,680,960	93,168,100	146,192,201	6,379,211	10,611,058

It will be seen from this table that the business done by the large companies has greatly increased since 1913. The operations of the abattoir companies, as can be seen by reference to Table IV, are not limited to meats only, but are very extensive in butter and eggs. Almost half of the butter and eggs sold in 1916 were sold by the large abattoir companies. The butter and eggs are preserved on the same premises as the meats and distributed through the same channels both wholesale and retail.

In order to discover whether there existed any undue accumulation of food supplies, the cold storage companies were required to state the quantities of each commodity on hand on September 1 and December 1 of each of the last four years. This data applied to the total quantity purchased during the year, it was believed, would disclose the desired information. Except in the case of eggs and beef, the proportion of goods on hand on these specific dates of each year, as compared to the total quantity purchased during the year, has decreased. Such is the natural outcome of increased business—a more rapid turnover will decrease the proportion of stock held at any particular time to the total quantity purchased during a long period. The total quantity purchased rather than sold was taken as the standard of comparison, because if accumulation existed it would appear there. Appended is a table prepared from the reports of those companies whose reports are complete for the four years:—

TABLE V.—Report by Companies whose records are complete for last four years of quantities purchased yearly and quantities on hand on specific dates 1913, 1914, 1915, 1916.

——	Quantity purchased in Pounds or Dozens.			
	1913.	1914.	1915.	1916.
Butter	29,762,610	28,653,959	29,931,976	33,007,317
Cheese	53,627,283	56,243,758	69,476,506	61,378,712
Eggs	18,353,385	15,951,734	22,278,380	21,218,972
Beef	94,732,210	89,811,810	92,419,388	99,295,202
Pork	48,020,640	63,005,428	55,385,261	51,576,804
Bacon	10,000,498	11,330,860	27,708,531	27,041,106
Ham	6,151,168	6,152,058	6,705,019	6,567,019
Mutton and lamb	8,258,810	8,666,235	9,230,804	8,236,345

TABLE V.—*Continued.*

	Quantity on hand on the same date of each year 1913–1914–1915–1916.							
	Sept. 1, 1913	Dec. 1.	Sept. 1, 1914	Dec. 1.	Sept. 1, 1915	Dec. 1.	Sept. 1, 1916	Dec. 1
Butter	5,461,811	.....	4,654,242	.....	5,994,842	.....	6,153,031	.....
Cheese	.....	4,442,352	.....	3,054,353	.....	5,412,994	.....	3,957,017
Eggs	3,552,873	.....	4,511,606	.....	5,297,466	.....	5,022,225	.....
Beef	.....	14,644,243	.....	8,570,837	.....	10,161,195	.....	20,085,588
Pork	9,972,115	7,551,373	11,199,769	9,665,281	11,461,289	4,418,635	14,799,163	8,371,331
Bacon	.....	2,212,196	.....	1,745,745	.....	1,920,577	.....	2,361,97
Ham	299,572	.....	399,420	.....	308,652	.....	155,029	.....
Mutton and lamb	.....	1,951,252	.....	1,542,226	.....	1,314,962	.....	1,656,909

The quantity of food purchased by these companies in 1916 covers about 90 per cent of all the food commodities except bacon purchased by the cold storage companies of Canada. The preceding table may be accepted as reliable evidence. The quantities of bacon dealt in by the two largest dealers in bacon have not been included as their dealings have been specially studied. The figures on bacon form a comparison here to the figures in the totals in Table I. Disturbing factors enter into a computation such as this which more or less invalidate a final judgment. One of the most important of these is *transportation* and the condition of transportation facilities. A company may have a hundred thousand pounds of cheese on hand December 1 which may be shipped the next day. The records of quantities on hand the first day of each month at present required by this Department, compared with such shown for the last year are much more reliable. The evidence of the table is, however, valuable. It shows for butter a decrease from 22 to 18 per cent in the proportion of goods on hand on a specific date to the total quantity purchased during the year; for cheese a decrease from 8 to 6 per cent; for eggs an increase from 19 to 23 per cent; on beef an increase from 15 to 22 per cent. The proportion of pork is practically the same throughout. The other commodities show a marked decrease.

The aggregate business of the large companies whose operations have been already analyzed, exclusive of those of Company No. VII whose records are not complete for the four years, has been greatly expanded in the period 1913-1916. The total business done by these nine companies has increased during the years mentioned by the following percentages; butter 46 per cent, eggs 32 per cent, cheese 14 per cent, beef 30 per cent, pork 80 per cent, ham 150 per cent, bacon 1,450 per cent. Sales of mutton and lamb have slightly decreased.

In view of the tendency towards monopoly, it is most important that the growth in the business of individual companies be carefully considered. All the companies whose operations are reported in Table IV have not profited equally by the general expansion of trade. The method adopted for calculating the increased trade of each company has been to compare the total receipts from the sales of all the commodities reported on in the years 1913 and 1916. A table showing the approximate increase of the year's receipts of the different companies, is given a page or two later on. It discloses a marked variation in the proportion in which the trade of the various companies has grown. The increase in that of Companies No. V and No. IX is disproportionate to the general increase. This is largely due to sales of pork and bacon. The volume of the business of Company No. IX is at the present time (July, 1917) about ten times that of 1913. Company I is one of the largest beef dealers in the West. Its total sales in beef in 1916 have nearly trebled since 1913. Those of Company No. IV, a Canadian branch of an American firm, are still nearly double that of its largest competitor but have increased only by approximately 20 per cent.

Company No. XII in 1916 sold approximately thirty million pounds of beef. In 1913 its sales were little more than one-third of this. The general margins for all the cold storage companies of Canada have decreased from 1·06 cents per pound in 1913 to ·7 cents per pound in 1916. This illustrates the effect of active competition. The very reverse process has been exemplified in regard to bacon and the resulting higher margin. These are the two most striking examples shown in the records of the effect of competition in the one case and of practical monopoly in the other. Particulars are yet to appear herein of the business of the months of March and April, 1917. These will be supplied to illustrate the perseverance of the tendency towards centralization of export trade especially in a few hands, and also to evidence the character of the information which is now supplied to the undersigned, monthly, concerning food stocks, costs, and prices. The April returns disclose that Company No. IX on April 1, had on hand 7,500,000 pounds of bacon alone, that it purchased during April about 10,500,000 pounds more of the same commodity and sold during the same month about 7,500,000 pounds. The company's month's sales of bacon alone at 24 cents per pound would approximate $1,800,000. This is certainly "big business".—just how big may be best appreciated by considering that a clear profit of one-quarter of one per cent per pound on such a monthly turnover for twelve months would yield $225,000 for distribution among the fortunate shareholders of the company as their profits upon bacon alone. The business done by this same company in May, which month's figures are not yet sufficiently analyzed to enable their inclusion within this report, amounted to $3,600,000, as respects the commodities included within this report. But the company deals in other commodities, such as hides, lard, and other by-products. It ought not to be surprising, therefore, if at the end of the year 1917 the gross business of this company would be found to have amounted to not less than $60,000,000 for the year.

The table previously mentioned follows:—

Comparison of growth of different companies reported in Table IV: their total annual receipts from sales of commodities covered by this report. (Note *a*.)

Company.	1913.	1914.	1915.	1916.
No. I	3,300,000	4,600,000	7,200,000	8,800,000
" II	4,600,000	4,600,000	7,000,000	9,000,300
" III	570,000	550,000	600,000	980,000
" IV	12,630,000	14,000,000	14,000,000	16,215,000
" V	2,500,000	3,500,000	7,000,000	11,900,000
" VIII	2,700,000	2,700,000	3,600,000	3,600,000
" IX	4,300,000	8,000,000	18,500,000	28,100,000
" X	5,300,000	5,600,000	6,700,000	8,100,000
" XI	900,000	1,100,000	1,300,000	2,500,000
" XII	.....	.....	.....	6,400,064[1]

[1] The operations of Company No. XII for which records for 1913 are not available is added here, because there exists at least a partial interlocking directorate betwen this Company and Company No. IX. Perhaps the association is closer. The inquiry has not yet been fully followed out.

Note *a*.—The specified receipts are exclusive of those from by-products such as hides, lard, etc.

TABLE VI.—FISH.

—	Total amount bought.			Total amount sold.		
	Pounds.	Dollars.	Average cost per pound.	Pounds	Dollars.	Average selling Price per pound.
Unclassified	20,581,049	813,536	3·95	20,238,457	1,107,853	5·47
Halibut	6,635,330	544,951	8·21	7,362,831	653,091	8·87
Salmon, Fresh	4,121,560	232,088	5·63	3,062,450	232,205	7·58
Herring, Fresh	4,107,941	91,962	2·23	2,710,075	98,420	3·63
Herring, Salt	1,271,955	37,971	2·98	803,913	37,465	4·66
Haddock	1,518,172	82,650	5·44	1,355,677	117,195	8·66
Whitefish	1,032,809	76,688	7·42	1,017,169	91,170	9·04
Cod, Salted	516,872	22,893	4·43	435,353	30,783	7·07
	39,785,688			36,985,925		

The preceding Table VI will show in a general way the transactions of the cold storage companies in fish for the year 1916. These dealings, while of considerable importance, are not extensive as compared with those in meat and dairy products. The margin earned seems to be substantial, considering the small capital cost per pound of the commodity. As it is intended to prepare and issue special data concerning fish the analysis of business done by the cold storage companies will not for the present be carried further.

STATEMENT FOR MARCH 1917.—Quantities on hand, Purchased and Sold by Cold Storage companies with average Prices during the month of March 1917.

—	Quantity on Hand March First, and Value.			Quantity purchased and Cost.			Quantity Sold and selling Price.		
	Lbs. or doz.	$	Average value per lb. or doz.	Lbs. or doz.	$	Average Cost Price per lb. or doz.	Lbs. or doz.	$	Average Selling Price per lb. or doz.
Butter	2,589,013	960,239	37·09	990,176	405,236	40·92	2,276,032	937,794	41·20
Eggs	99,119	34,263	34·6	1,213,695	449,325	37·00	1,166,809	445,174	38·2
Cheese	1,219,972	281,766	23·09	207,027	54,469	26·3	554,243	144,028	25·9
Beef	18,527,176	1,941,774	10·05	9,913,822	1,434,855	14·5	14,443,354	1,849,427	12·8
Pork	22,651,485	4,410,287	19·47	15,810,183	3,268,164	20·67	11,609,371	2,372,541	22·15
Bacon	10,449,750	2,191,887	20·9	15,287,240	3,415,279	22·3	14,181,782	3,094,980	21·8
Ham	2,049,030	452,945	22·1	664,034	162,706	23·1	778,429	205,237	26·3
Mutton and Lamb	3,818,160	668,369	17·5	477,447	101,390	21·2	1,026,467	195,756	19·7

STATEMENT FOR MARCH 1916.—Quantities Purchased and sold by Cold Storage Companies with average prices during the month of March 1916.

	Quantity purchased and Cost.			Quantity sold and Selling Price.		
	Lbs.	$	Average Cost Price per lb. or doz.	Lbs.	$	Average selling Price per lb. or doz.
Butter	758,296	235,525	31·06	2,122,057	680,048	32·05
Eggs	1,261,343	303,658	24·07	1,182,534	316,691	26·78
Cheese	535,565	103,172	19·26[1]	1,578,185	272,945	17·36
Beef	9,350,282	1,189,846	12·72	10,122,631	1,148,663	11·35
Pork	12,784,183	1,843,948	14·43	8,483,666	1,309,911	15·44
Bacon	10,987,301	1,762,588	16·04	10,807,185	1,954,067	18·8
Ham	693,301	104,167	15·02	688,562	123,131	17·88
Mutton and Lamb	3,395,833	411,094	12·11	1,589,691	233,518	14·69

[1]NOTE.—Cheese purchased in March for succeeding season.

STATEMENT OF COLD STORAGES FOR CANADA.

BUTTER—MARCH, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$	Cost Average	Lbs.	$	Cost Average	Lbs.	$	Price Average
Montreal	360,570	134,872	37·40	343,011	144,620	42·16	690,467	290,845	42·12
	200,870	82,605	.....	.....	.....	.....	.....	.....	.....
Ontario (exclusive of Toronto)	374,046	138,829	37·11	75,659	29,890	39·50	257,338	102,708	39·91
Toronto	809,511	306,189	37·82	439,133	178,273	40·59	646,342	268,770	41·56
	183,128	69,259	.....	.....	.....	.....	194,275	80,741	.....
Winnipeg	173,451	62,936	36·28	34,724	11,351	32·68	157,284	60,256	38·31
	7,630	2,768	.....	.....	.....	.....	2,951	1,131	.....
Alberta and Saskatchewan	213,105	64,933	30·46	8,910	3,580	40·17	167,965	65,281	38·86
	7,674	2,338	.....	.....	.....	.....	763	297	.....
British Columbia	152,657	53,890	35·30	71,970	30,871	42·89	139,693	60,319	43·18
	36,591	13,363	.....	.....	.....	.....	.....	.....	.....
Yukon	17,960	8,440	46·98	.....	.....	.....	1,440	719	49·93
Maritime Provinces	19,200	7,159	.....	740	263	35·54	4,840	1,805	37·29
Manitoba (exclusive of Winnipeg)	32,620	12,657	.....	16,029	6,388	39·85	12,665	4,922	38·86
Total	2,589,013	960,239	37·09	990,176	405,236	40·92	2,276,032	937,794	41·20

Goods stored for others:—

Quantity on hand first day of the month	870,943
Quantity received during month	159,890
Qtuanity removed during the month	425,335

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STATEMENT OF COLD STORAGES IN CANADA.

EGGS—MARCH, 1917.

	Quantity on Hand the First day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$	Cost Average	Lbs.	$	Cost Average	Lbs.	$	Price Average
Montreal	10,897	3,249	29·9	345,226	137,328	39·8	343,452	138,598	40·2
	2,700	807	.....	.....	.....	.....	.....	.....	.....
Ontario (exclusive of Toronto)	55,706	17,581	31·6	88,028	33,874	38·5	98,465	35,652	36·1
	321	102	.....	.....	.....	.....	450	162	.....
Toronto	4,786	1,991	41·6	511,937	188,811	36·9	364,394	136,923	37·6
	9,941	4,236	.....	.....	.....	.....	115,985	43,577	.....
Winnipeg	8,634	3,871	44·1	132,653	46,826	35·3	132,035	48,577	36·8
	120	53	.....	.....	.....	.....	.....	.....	.....
Alberta and Saskatchewan	1,980	826	41·7	31,170	9,178	29·4	69,927	26,262	37·5
	300	125	.....	49,350	14,509	Est'd.	1,440	440	.....
British Columbia	1,020	.....	.....	.....	.....	.....	.....	.....	.....
	2,714	1,033	38·1	38,813	13,083	33·7	24,521	9,125	37·4
Maritime Provinces	.....	.....	.....	9,500	3,230	32·9	9,210	3,225	35·0
Manitoba (exclusive of Winnipeg)	.....	.....	.....	7,020	2,486	35·4	7,020	2,633	37·5
Total	99,119	34,263	34·6	1,213,695	449,325	37·0	1,166,809	445,174	38·2

Goods stored for others:—

Quantity on hand first day of the month	1,800
Quantity removed	4,800
Quantity received	11,758

STATEMENT OF COLD STORAGES IN CANADA.—*Con.*

CHEESE, MARCH, 1917.

—	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$	Cost Average	Lbs.	$	Cost Average	Lbs.	$	Price Average
Montreal....	407,736	83,953	20·59	58,031	15,490	26·69	92,223	24,002	26·02
	58,229	11,987	.....	.....	.....	.....	.....	.....	.....
Ontario.....	113,035	26,012	23·01	7,923	2,079	26·24	64,812	16,002	24·68
	32,085	7,383	.....	.....	.....	.....	1,313	324	.....
Toronto.....	270,109	69,250	25·63	100,177	26,461	26·41	144,760	37,885	26·17
	34,423	8,823	.....	.....	.....	.....	53,958	14,121	.....
Manitoba and Winnipeg...	134,199	33,633	25·06	1,114	276	24·77	46,214	12,738	27·56
Alberta and Saskatchewan.....	141,018	32,658	23·15	5,126	1,688	32·93	119,979	30,786	25·66
British Columbia...	32,138	8,067	25·10	34,656	8,475	24·45	30,984	8,170	26·40
Total.....	1,219,972	281,766	23·09	207,027	54,469	26·3	554,243	144,028	25·9

Goods stored for others:—

Quantity on hand first day of the month.....	331,311
Quantity received during the month.....	60,155
Quantity removed during the month.....	262,637

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STATEMENT OF COLD STORAGES IN CANADA.—*Con.*

BACON, MARCH, 1917.

	Quantity on Hand the First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$	Cost Average	Lbs.	$	Cost Average	Lbs.	$	Price Average
Montreal.....	1,279,078	261,970	20·48	1,704,565	387,280	22·72	1,239,530	293,154	23·65
	.....	.....	.....	.....	.....	.....	47,875	11,322	.....
	200	40	.....	100	23	23·23	100	28	28·00
Ontario (exclusive of Toronto)...	1,047,221	253,888	24·24	2,780,372	636,336	22·88	2,211,965	522,648	23·62
	740,684	179,542	.....	.....	.....	.....	.....	.....	.....
Toronto.....	6,857,382	1,385,444	20·20	10,397,659	2,295,852	22·08	1,648,222	345,608	.....
	29,073	587	.....	.....	.....	.....	8,523,899	1,785,757	20·95
Winnipeg.....	124,756	27,110	21·73	103,662	25,604	24·69	153,941	38,010	24·69
	105,878	23,007	.....	.....	.....	.....	.....	.....	.....
Alberta and Saskatchewan.....	143,794	32,037	.....	.....	.....	.....	.....	.....	.....
	112,335	25,037	22·28	247,756	56,373	22·75	302,992	83,489	27·52
British Columbia..	3,058	757	24·55	53,126	13,834	26·04	52,559	14,684	27·94
	1,150	282	.....	.....	.....	.....	.....	.....	.....
Yukon.....	5,116	2,071	.....	.....	.....	.....	699	280	40·00
Total.....	10,449,750	2,191,887	20·9	15,287,240	3,415,279	22·3	14,181,782	3,094,980	21·8

Goods stored for others:—

Quantity on hand first day of month..... 3,653 pounds.
Quantity received during month..... None. "
Quantity removed during month..... None. "

STATEMENT OF COLD STORAGES IN CANADA.—*Con.*

HAM, MARCH, 1917.

	Quantity on Hand the First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$	Cost Average	Lbs.	$	Cost Average	Lbs.	$	Price Average
Montreal.....	375,384	82,902	22·1	124,514	29,608	23·8	155,538	42,171	27·1
Ontario (exclusive of Toronto)...	352,794	81,109	23·00	267,272	69,640	26·00	206,868	57,941	28·00
	219,786	50,551	.....	.....	.....	.....	.....	.....	.....
Toronto.....	407,427	89,802	22·1	91,834	21,121	23·00	90,692	22,199	24·5
	36,237	8,019	.....	.....	.....	.....	97,842	23,971	.....
Winnipeg.....	182,302	36,793	20·3	26,545	5,740	21·7	76,573	18,340	25·2
	184,394	37,342	.....	.....	.....	.....	.....	.....	.....
Alberta.....	78,826	17,718	22·5	36,990	7,213	19·5	78,277	20,344	26·00
Saskatchewan	193,945	43,636	22·5	72,143	17,939	24·9	36,976	10,207	27·6
Quebec (exclusive of Montreal)...	3,000	600	20·00	1,000	230	23·00	100	280	28·00
British Columbia...	3,687	869	23·56	43,736	11,215	25·6	34,082	9,417	30·56
	3,200	754	.....	.....	.....	.....	.....	.....	.....
Yukon.....	8,048	2,644	32·84	.....	.....	.....	581	367	63·12
Total.....	2,049,030	452,945	22·1	664,034	162,706	23·1	778,429	205,237	26·3

Goods stored for others:—

Quantity on hand first day of the month	113,516 pounds.
Quantity received during the month	12,400
Quantity sold during the month	13,200

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STATEMENT OF COLD STORAGES IN CANADA.—*Con.*

PORK, MARCH, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$	Cost Average	Lbs.	$	Cost Average	Lbs.	$	Price Average
Montreal	632,636	121,382	19·2	494,603	96,954	19·6	631,679	136,923	22·4
Ontario (exclusive of Toronto)	2,253,119	410,009	18·2	2,467,250	487,203	19·8	2,942,916	571,377	19·4
	12,978	2,362							
Toronto	11,169,719	2,183,135	19·5	7,758,938	1,636,802	21·1	4,839,428	1,163,006	24·1
	52,672	10,271					451,474	108,805	
Winnipeg	1,970,206	388,162	19·6	1,545,027	281,403	18·2	918,185	197,719	21·5
Alberta and Saskatchewan	4,918,345	916,886	19·6	2,760,980	576,350	20·9	1,345,555	280,138	20·7
Quebec	2,000	420	21·00	4,000	840	21·00	6,000	1,380	23·00
British Columbia	1,606,967	324,646	20·20	779,385	188,612	24·2	464,192	112,901	24·32
	16,140	3,260							
Yukon	16,703	4,288	25·67				942	292	30·94
Total	22,651,485	4,410,287	19,47	15,810,183	3,268,164	20·67	11,609,371	2,572,541	22·15

Goods stored for others:—

Quantity on hand first day of the month	550,972 pounds.
Quantity received during month	414,111 "
Quantity removed during month	114,470 "

STATEMENT OF COLD STORAGES IN CANADA.

MUTTON AND LAMB, MARCH, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lb.	$	Cost Average	Lb.	$	Cost Average	Lb.	$	Cost Average
Montreal	856,847	158,156	18·45	4,015	777	19·32	119,071	21,439	18·0
	300	45	15·0	100	15	15·0	400	80	20·0
Ontario	4,797	1,008	21·01	16,687	4,139	24·80	19,467	4,025	20·48
Toronto	1,318,629	234,611	17·79	221,436	42,487	19·18	402,191	75,629	18·80
							37,160	6,986	
Winnipeg	348,072	65,222	18·73	34,980	6,827	19·51	76,786	14,627	19·04
	242,042	45,234							
Alberta and Saskatchewan	567,656	88,502	15·59	51,862	10,200	19·66	144,247	27,206	18·86
	64,107	9,994							
Yukon	6,550	1,997	30·48				1,129	403	35·65
British Columbia	101,091	16,794	16·61	148,367	36,945	24·9	155,336	32,461	
	19,237	3,195							
Maritime Provinces	288,607	43,291							
	225	22					70,500	12,900	18·29
Total	3,818,160	668,369	17·5	477,447	101,390	21·2	1,026,467	195,756	19·7

Goods stored for others:—

Quantity on hand first day of the month	898,910
Quantity received during the month	76,605
Quantity removed during the month	285,129

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STATEMENT OF COLD STORAGES IN CANADA.

BEEF, MARCH, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lb.	$	Cost Average	Lb.	$	Cost Average	Lb.	$	Cost Average
Montreal	2,955,846	343,563	11·62	739,604	94,210	12·73	2,077,507	191,519	9·21
	6,000	480	8·0	2,000	240	12·0	3,000	390	13·0
Ontario	99,517	13,486	13·55	777,409	112,330	14·45	774,757	107,252	13·84
	7,500	1,016							
Toronto	5,936,980	685,100	11·53	5,092,274	759,840	14·92	3,901,899	556,012	14·25
							1,410,403	200,982	
Winnipeg	2,995,267	304,049	10·15	952,352	131,969	13·85	3,034,176	366,969	12·09
	181,018	18,373		94,248	13,053				
Brandon	4,575,925	376,228	8·2	1,019,385	122,927	12·1	1,839,938	226,290	12·3
	574,612	46,118							
British Columbia	930,766	110,292	11·84	1,225,350	198,386	16·2	1,284,351	190,423	14·82
	46,550	5,512							
Yukon	114,395	28,514	24·92				9,823	2,590	26·46
Maritime Provinces	102,800	8,224		11,200	1,900		68,500	7,000	10·22
Total	18,527,176	1,941,774	10·5	9,913,822	1,434,855	14·5	14,443,354	1,849,427	12·8

Goods stores for others:—

Quantity on hand first day of the month	2,645,329
Quantity received during the month	458,753
Quantity removed during the month	1,064,759

STATEMENT for April, 1917.—Quantities on hand, purchased and sold, by Cold Storage Companies with average prices for the month of April, 1917.

Commodity.	Quantity on hand April first.			Quantity purchased during the month.			Quantity sold during the month.			Goods stored for others: Quantity hand first day of the month.
	Lb	$	Average.	Lb.	$	Average.	Lb.	$	Average.	Lb.
Butter	1,372,975	512,860	37·35	936,344	375,247	40·07	1,720,410	693,855	40·33	228,286
Eggs	177,637	58,081	32·69	2,002,883	683,378	34·12	1,260,985	451,629	35·74	37,620
Cheese	516,921	132,323	25·58	1,176,662	296,199	25·17	550,921	150,300	27·28	177,576
Beef	12,353,374	1,376,098	11·14	11,496,837	1,774,384	15·43	13,526,965	2,015,154	14·89	3,175,906
Pork	23,108,011	4,836,364	20·93	17,142,108	3,965,853	23·14	10,489,492	2,444,530	23·30	616,134
Smoked meats	49,256	9,688	19·66	216,226	55,853	25·83	212,483	54,676	25·73	.....
Bacon	12,309,305	2,829,234	22·98	15,775,988	3,847,582	24·39	12,400,707	3,052,258	24·61	1,479
Ham	2,041,813	494,172	24·20	668,963	179,039	26·76	653,603	181,575	27·28	251,494
Hams and bacon	240,280	61,568	25·58	885,180	223,689	25·38	820,171	230,595	28·12	792
Mutton and lamb	2,082,387	386,201	16·2	230,627	48,638	20·1	778,506	152,411	19·6	736,106
Fish	156,992	17,228	10·96	12,450	1,494	12·00	64,883	7,734	11·96	.....
All varieties cod-haddock	5,725	400	7·0	5,946	44	7·35	9,781	978	10·0	161,102
Haddock	50,038	4,997	9·99	1,845	194	10·5	28,015	3,227	11·52	2,670
Halibut	233,893	27,502	11·76	428,584	44,142	13·62	286,868	34,502	12·3	13,165
Herring (salt)	59,900	4,598	7·67	640	45	7·03	10,955	871	8·0	73,852
Herring (fresh) (exclusive of British Columbia)	56,287	2,848	5·0	.....	.....	.....	8,198	450	5·49	354,334
Herring, British Columbia	1,697,725	14,731	0·89	309,875	3,385	10·09	305,117	4,578	1·5	.....
Salmon	30,671	3,041	9·91	78,468	9,346	11·91	85,285	11,453	13·43	99,602
White fish	85,705	8,082	9·43	6,447	751	11·65	65,646	7,126	12·38	29,882

STATEMENT for April, 1916.—Quantities purchased and sold by Cold Storage Companies with average prices.

Commodity.	Bought.			Sold.		
	Lbs.	$	Average.	Lbs.	$	Average.
Butter	1,578,853	503,145	31·9	2,064,164	672,908	32·6
Eggs	2,610,273	697,999	26·7	1,460,144	347,143	24·6[1]
Cheese	1,691,438	295,609	17·5	1,405,664	257,944	18·4
Beef	12,279,428	1,411,932	11·5	18,540,965	2,332,872	12·6
Pork	12,272,499	1,923,355	15·7	7,648,430	1,247,501	16·3
Bacon	7,890,256	1,337,970	16·8	12,602,164	2,425,226	19·2
Smoked Pork (unclassified)	3,983,334	625,468	15·7	4,862,000	902,142	18·6
Ham	625,496	101,511	16·2	785,375	154,029	19·6
Mutton and Lamb	562,229	94,627	16·9	1,168,994	194,845	16·7
Fish (unclassified)	118,931	7,212	6·1	183,174	17,121	9·3
Cod	173,012	17,343	10·02	11,106	1,125	10·02
Haddock	927,222	61,418	6·3	1,096,153	93,474	8·5
Halibut (fresh)	195,792	12,645	6·5	277,985	24,859	8·2
Herring (fresh)	27,900	1,604	5·7	419,477	17,013	4·06[2]
Herring (salt)	48,963	1,896	3·25	35,587	1,711	4·8
Salmon (fresh)	86,028	6,459	7·5	66,548	8,536	12·8[3]
Whitefish	2,325,699	195,434	8·4	1,039,660	102,886	9·9

NOTE 1.—This does not necessarily represent a loss as cold storage companies sell remainder of previous season's stock in April or at the end of March, the profit being made on sales in the previous months.

NOTE 2.—Low selling price due to sale of approximately 350,000 pounds by a company in Nova Scotia at less than 4 cents a pound.

NOTE 3.—Wide margin is due to the fact that the bulk purchases are made by companies on the coast and the bulk sales are made by companies in Winnipeg.

STATEMENT OF COLD STORAGES FOR CANADA.

BUTTER—APRIL, 1917.

—	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average value per Lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Maritime Provinces..	11,000	2,860 00	26·71	.....	.....	.....	10,700	2,900 00	27·1
Quebec.....	67,861	26,360 49	38·84	229,010	91,677 72	40·03	306,620	127,758 61	41·67
	111,494	43,304 27	.....	.....	.....	.....	.....	.....	.....
Ontario.....	188,576	70,792 52	35·74	98,710	39,511 95	40·43	203,800	78,487 07	38·51
	14,632	5,229 48	.....	.....	.....	.....	.....	.....	.....
Toronto.....	455,922	179,123 73	39,29	413,975	166,355 25	40·18	626,399	254,175 63	40·57
	57,903	22,750 09	.....	.....	.....	.....	100,199	40,650 73	.....
Manitoba.....	96,952	34,002 94	35·07	117,160	46,323 83	39·54	201,432	79,480 53	39·45
	37,407	13,118 63	.....	.....	.....	.....	5,538	.....	.....
Alberta and Saskatchewan	109,219	32,583 67	29·83	23,410	9,120 19	38·95	132,905	53,603 42	39·58[1]
	3,794	1,131 75	.....	.....	.....	.....	.....	.....	.....
British Columbia..	199,221	74,500 82	37·39	54,079	22,255 81	41·15	132,817	56,798 38	42·69
	18,994	7,101 87	.....	.....	.....	.....	.....	.....	.....
Total.....	1,372,975	512,860	37·35	936,344	375,247	40·07	1,720,410	693,855	40·33.

Goods stored for others:—

Quantity on hand first day of the month.....	228,286
Quantity received during the month.....	97,895
Quantity removed during the month.....	238,921

NOTE[1]—This is due to a large profit made by one company in butter, approximately 2,000,000 pounds of butter were sold at a margin of 10 cents a pound.

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STATEMENT OF COLD STORAGES FOR CANADA.

EGGS—APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Maritime Provinces..	300	90 00	30·00	18,300	5,655 00	30·90	17,520	5,950 00	33·96
Montreal.....	14,593	5,355 60	36·7	490,732	176,459 03	35·96	357,675	138,867 18	38·82
	3,330	1,233 11	.....	.....	.....	.....	.....	.....	.....
Ontario.....	76,509	25,273 21	33·03	469,126	156,846 31	33·43	240,422	84,225 51	35·03
	24,411	8,062 95	.....	.....	.....	.....	.....	.....	.....
Toronto.....	9,033	3,341 36	36,99	502,521	177,567 72	35 33	333,994	120,408 76	36·05
	4,971	1,838 77	.....	.....	.....	.....	35,169	12,678 42	.....
Manitoba.....	8,662	2,767 80	31·95	345,101	109,113 93	31 62	159,185	52,288 02	32·9
Alberta and Saskatchewan	12,180	3,255 54	26·73	96,978	31,449 54	32·43	64,335	19,425 00	30·19
	9,241	2,468 95	.....	.....	.....	.....	.....	.....	.....
British Columbia..	13,567	4,139 57	30·51	80,125	26,286 78	32·8	52,685	17,787 33	33·76
	840	256 28	.....	.....	.....	.....	.....	.....	.....
Total....	177,637	58,081	32·69	2,002,883	683,378	34·12	1,260,985	451,629	35·74

Goods stored for others:—

Quantity on hand first day of the month	37,620
Quantity received during the month	464,841
Quantity removed during the month	31,360

STATEMENT OF COLD STORAGES FOR CANADA.

CHEESE APRIL, 1917.

—	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Quebec	21,398	5,485 10	25·63	702,128	170,496 88	24·28	69,116	18,653 47	27·99
	15,927	4,082 09							
Ontario	94,878	22,758 13	23·99	166,524	44,181 55	26·53	123,109	33,652 18	27·33
	22,451	5,385 99							
Toronto	176,543	44,307 52	25·09	211,660	55,591 13	26·26	249,034	67,976 00	27·03
Manitoba	91,179	23,259 43	25·51	45,198	11,878 75	26·06	25,554	6,760 76	26·46
Alberta and Saskatchewan	52,906	14,215 72	26·87	42,391	11,874 39	28·01	61,716	17,118 52	27·74
British Columbia	41,639	10,829 22	26·01	8,761	2,176 07	24·84	22,392	6,139 47	27·42
Total	516,921	132,323 20	25·58	1,176,662	296,198 77	25·17	550,921	150,300 40	27·28

Goods stored for others:—

Quantity on hand first day of the month	177,576
Quantity received during the month	175,047
Quantity removed during the month	237,900

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STATEMENT OF COLD STORAGE FOR CANADA.

BEEF—APRIL, 1917.

—	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Maritime Provinces...	45,500	7,361 90	[1]16·18	4,200	700 00	16·67	38,900	5,595 00	16·18
Quebec.....	2,161,434	262,066 11	[2]12·12	825,392	128,963 48	15·62	1,039,374	182,593 65	17·57
	3,000	363 60		6,000	937 20				
Ontario.....	107,069	17,169 36	16·03	577,372	98,762 36	17·10	605,752	90,964 78	15·01
	9,500	1,522 85							
Toronto.....	3,683,660	444,335 79	12·06	6,697,350	1,037,839 80	15·49	4,710,576	739,276 48	15·48
							1,004,339	155,471 68	
Manitoba.....	1,161,611	134,252 05	11·56	1,208,872	174,086 45	14·40	1,823,913	245,859 50	13·48
	95,897	11,085 69							
Alberta and Saskatchewan.....	3,623,369	319,460 17	8·81	820,452	113,338 47	13·81	2,748,486	371,282 89	13·51
	434,996	38,323 15							
British Columbia.....	996,088	135,896 10	13·64	1,357,199	219,766 97	16·19	1,555,625	224,959 83	14·39
	31,250	4,262 50							
Total.....	12,353,374	1,376,098 00	11·14	11,496,837	1,774,394 00	15·43	13,526,965	2,015,154 00	14·89

[1]Value estimated.
[2]Details of two large factors in these transactions.

STATEMENT OF COLD STORAGE FOR CANADA.

—	Quantity on Hand.			Quantity Bought.			Quantity Sold.		
	Lbs.	$ cts.	Average	Lbs.	$ cts.	Average	Lbs.	$ cts.	Average
Co. A.....	1,709,531	220,985 07	12·34	439,076	65,196 33	14·84	608,694	118,321 00	19·43
Co. B.....	370,903	41,081 04	11·08	361,006	60,087 96	16·64	430,680	64,272 00	14·92

Goods stored for others:—
Quantity on hand first day of the month..... 3,175,906
Quantity received during the month..... 348,644
Quantity removed during the month..... 820,947

STATEMENT OF COLD STORAGE FOR CANADA.

PORK, APRIL, 1917.

—	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Quebec	569,955	123,076 90	21·59	514,524	99,800 04	19·39	479,949	99,124 42	20·65
Ontario	1,828,185	381,750 99	20·88	2,605,369	629,458 18	24·16	2,173,953	478,446 44	22·01
	11,743	2,451 94							
Toronto	12,060,211	2,505,497 74	20·77	10,569,780	2,512,680 08	23·77	5,570,106	1,381,494 64	24·80
	40,000	8,308 00	.....	.....	.....	.....	183,419	45,487 91	.....
Manitoba	442,962	107,090 26	24·17	798,533	138,328 50	17·32	354,202	74,647 43	21·07
	61,776	14,931 26							
Alberta and Saskatchewan	5,806,265	1,196,063 39	20·59	2,136,249	448,972 60	21·01	1,202,566	245,874 99	20·44
	383,653	78,994 15	.....	.....	.....	.....	.....	.....	.....
British Columbia	1,943,261	418,201 10	21·52	517,653	136,614 31	26·58	525,297	119,455 50	22·74
Total	23,108,011	4,836,364 00	20·93	17,142,108	3,965,853 00	23·14	10,489,492	2,444,530 00	23·30

Goods stored for others:—

Quantity on hand first day of the month	616,134
Quantity received during the month	308,069
Quantity removed during the month	44,791

STATEMENT OF COLD STORAGE FOR CANADA

SMOKED MEATS, APRIL, 1917.

—	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price	Lbs.	$ cts.	Average Selling Price.
Ontario	22,344	5,270 54	23·59	121,630	32,298 40	26·55	129,829	32,250 06	24·84
Manitoba	16,917	4,417 72	26·11	94,596	23,555 23	24·81	82,654	22,426 78	27·13
Total	49,256	9,688 00	19·66	216,226	55,853 00	25·83	212,483	54,676 00	25·73

Goods stored for others:—None.

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STATEMENT OF COLD STORAGE FOR CANADA.

BACON, APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average value per lb.	Lbs.	$	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Quebec...	2,441,319	549,916 65	22·52	3,151,720	770,705 44	24·45	2,576,805	636,205 09	24·68
Ontario..	1,148,500	280,047 45	24·38	2,178,830	510,172 68	23·41	2,296,084	582,530 24	25·37
	1,013,844	247,175 17	.....	.....	.....	.....	.....	.....	.....
Toronto..	7,042,063	1,616,236 35	22·95	10,100,682	2,483,519 14	24·58	1,466,134	354,537 30	24·12
	27,513	6,314 23	.....	.....	.....	.....	5,613,254	1,353,916 86	.....
Manitoba.	111,442	26,655 44	23·91	24,976	5,927 49	27·78	61,766	16,656 31	26·97
	110,021	6,506 02	.....	.....	.....	.....	.....	.....	.....
Alberta and Saskatchewan....	127,448	29,152 59	22·85	255,314	59,722 57	23·39	335,899	93,482 82	27·80
	211,316	48,285 71	.....	.....	.....	.....	.....	.....	.....
British Columbia	73,989	18,510 91	25·01	64,466	17,535 42	27·20	50,765	14,931 62	29·39
	1,850	462 69							
Total.	12,309,305	2,829,234	22·98	15,775,988	3,847,582	24·39	12,400,707	3,052,258	24·61

Goods stored for others:—

Quantity on hand first day of the month	1,479
Quantity received during the month	201,531
Quantity removed during the month	1,100

STATEMENT OF COLD STORAGE FOR CANADA.

HAM APRIL, 1917.

	Quantity on Hand First Day of the month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Quebec	334,120	79,811 49	23·89	117,799	33,490 53	28·43	113,178	30,622 72	27·04
Ontario	386,108	100,284 76	25·94	245,939	70,266 15	28·57	139,920	41,221 45	29·50
	246,384	63,912 01							
Toronto	349,896	85,248 05	24·37	117,448	27,454 45	23·37	140,547	40,052 06	28·50
	33,155	8,079 87					30,661	8,738 38	
Manitoba	149,727	30,745 78	20·53	9,616	2,136 12	22·21	64,366	15,421 03	23·96
	185,994	38,845 68							
Alberta and Saskatchewan	18,789	4,570 72	24·33	129,899	32,858 69	25·29	136,815	37,076 83	27·09
	217,749	52,978 33							
British Columbia	117,191	28,990 01	24·79	48,262	12,832 88	26·06	28,136	8,442 80	30·00
	2,700	669 33							
Total	2,041,813	494,172	24·20	668,963	179,039	26·76	653,603	181,575	27·28

Goods stored for others:—

Quantity on hand first day of the month	251,494
Quantity received during the month	25,368
Quantity removed during the month	85,636

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STA MENT OF COLD STORAGE FOR CANADA.

HAMS AND BACON, APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Montreal.....	107,321	24,857 91	23 16	232,647	49,502 35	21·28	169,504	42,523 26	25·1
Toronto.....	57,912	17,056 17	29·25	168,281	45,897 87	27·27	178,710	54,162 59	30·31
Manitoba....	36,138	10,568 00	29·25	189,109	49,125 00	25·98	194,315	59,921 00	30·84
Alberta.....	38,909	9,086 80	27·93	295,143	79,163 68	26·82	277,642	73,988 29	26·65
Total.....	240,280	61,568.00	25·58	885,180	223,689.00	25·38	820,171	230,595 00	28·12

Goods stored for others:—

Quantity on hand first day of the month	792
Quantity received during the month	560
Quantity removed during the month	1,006

STATEMENT OF COLD STORAGE FOR CANADA.

MUTTON AND LAMB—APRIL, 1917.

	Quantity on Hand First Day of the month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$	Average	Lbs.	$	Average	Lbs.	$	Average
Maritime Provinces.....	15,400	2,772	18·0[1]	.....	.....	.....	138,500	25,000	18·05
Montreal.....	742,336	141,431	19·05	3,029	609	20·1	103,991	20,438	19·6
Ontario (exclusive of Toronto)...	.....	.....	.....	13,543	2,829	20·9	16,562	3,312	20·0
Toronto.....	420,656	79,480	18·9	28,493	6,377	22·4	65,075	13,573	20·8
Winnipeg.....	430,242	83,602	19·4	9,356	1,944	20·8	103,601	21,834	21·1
Alberta and Saskatchewan.....	363,042	55,705	15·3	3,673	869	23·7	181,509	34,220	18·8
British Columbia.....	105,290	21,575	20·5	172,533	36,010	20·9	167,807	33,475	20·0
Yukon.....	5,421	1,636	30·2	.....	.....	.....	1,461	559	38·3
Total.....	2,082,387	386,201	16·2	230,627	48,638	20·1	778,506	152,411	19·6

[1]Estimated.

Goods stored for others:—

Quantity on hand first day of the month	736,106
Quantity received during the month	36,329
Quantity removed during the month	210,027

STATEMENT OF COLD STORAGE FOR CANADA.

FISH, ALL VARIETIES—APRIL, 1917.

	Quantity on Hand first Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Sale Price.
Toronto.....	71,474	8,618 51	12·00	.....	.....	.....	29,638	3,652 42	12·32
Manitoba.....	85,518	8,610 00	10·07	12,450	1,494 00	12·00	35,245	4,082 25	11·58
Total.....	156,992	17,228 00	10·96	12,450	1,494 00	12·00	64,883	7,734 67	11·96

Goods stored for others:—None.

STATEMENT OF COLD STORAGE FOR CANADA.

HALIBUT—APRIL 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Ontario.....	3,125	468 75	15·00	1,263	189 45	15·00	.....	.....	.....
Toronto.....	31,112	4,666 80	15·00	6,925	11,080 00	16·00	30,757	5,228 69	17·00
Manitoba.....	25,058	3,833 88	15·3	.....	.....	.....	14,232	2,223 07	15·62
Alberta and Saskatchewan.....	31,344	4,988 76	15·91	.....	.....	.....	11,838	2,004 57	16·93
British Columbia.....	143,254	13,543 09	9·45	420,396	43,115 24	10·25	230,041	25,046 04	10·88
Total.....	233,893	27,502 00	11·76	428,584	44,412 00	13,62	286,866	34,502 00	12·3

Goods stored for others:—

Quantity on hand first day of the month.....	13,165
Quantity received during the month.....	5,251
Quantity removed during the month.....	2,765

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STATEMENT OF COLD STORAGE FOR CANADA.

SALMON—APRIL 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Toronto	7,517	751 70	[1]10·00	6,959	695 90	10·0	14,476	1,592 36	11·0
Alberta	23,154	2,389 05	10·32				9,119	1,115 32	12·23
British Columbia	30,671	3,041 00	9·91	71,509	8,650 06	12·09	61,690	8,744 94	12·55
Total	30,671	3,041 00	9·91	78,468	9,346 00	11·91	85,285	11,452 00	13·43

[1]Estimated.

Goods stored for others:—

Quantity on hand first day of the month	99,602
Quantity received during the month	4,989
Quantity removed during the month	50,087

STATEMENT OF COLD STORAGE FOR CANADA.

HERRING (FRESH), APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Ontario	1,925	115 50	6·0						
Toronto	1,615	96 90	6·0				1,500	97 50	6·5
Alberta and Saskatchewan	8,475	423 75	5·0				6,698	352 49	5·26
	44,272	2,213 60							
Total for Canada exclusive of British Columbia	56,287	2,848 00	5·0				8,198	450 00	5·49
British Columbia	1,697,725	14,731 31	0·89	309,875	3,385 14	10·9	305,117	4,576 75	1·5

[1]This is fresh herring purchased directly from fishermen at boat, much of it is used for bait and some for fertilizer, overhead, packing, preservation charges included in these figures.

Goods stored for others:—

Quantity on hand first day of month	354,334
Quantity received during month	13,767
Quantity removed during month	69,105

STATEMENT OF COLD STORAGE FOR CANADA.

HERRING (SALT), APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Manitoba ...	13,160	847 36	6,44	.....	.....	.....	3,255	243 40	7·44
Alberta and Saskatchewan	42,450	3,481 77	8·2	.....	.....	.....	6,760	557 20	8·24
British Columbia ..	4,290	268 65	6·26	640	44 80	7·03	940	75 30	8·22
	59,900	4,598 00	7·67	640	44 80	7·03	10,955	871 00	8·00

Goods stored for others:—

Quantity on hand first day of the month	73,852
Quantity received during the month	9,760
Quantity removed during the month	14,730

STATEMENT OF COLD STORAGE FOR CANADA.

HADDOCK (SALT), APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per Lb.	Lbs.	$ cts.	Average Cost Price	Lbs.	$ cts.	Average Selling Price.
Ontario.....	14,110	1,191 82	8·45	.....	.....	.....	13,810	1,399 52	10·14
Toronto.....	7,636	717 78	9·40	1,845	193 72	10·5	5,926	681 49	11·5
Alberta and Saskatchewan.....	22,307	2,565 30	11·5	.....	.....	.....	6,698	938 74	13·10
British Columbia....	5,985	523 68	8·75	.....	.....	.....	1,581	209 32	13·23
Total.....	50,038	4,997 00	9·99	1,845	193 72	10·5	20,015	3,227 00	11·52

[1]NOTE—Estimated.

Goods stored for others:—

Quantity on hand first day of the month	2,670
Quantity received during the month	3,120
Quantity removed during the month	1,005

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STATEMENT OF COLD STORAGE FOR CANADA.

WHITE FISH, APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs.	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Toronto.....	38,828	3,899 98	10·04	6,447	751 40	11·65	47,240	5,211 90	11·03
	12,833	1,288 43	.....	.....	.....	.....	.....	.....	.....
Alberta and Saskatchewan.....	11,328	962 88	8·5	.....	.....	.....	18,406	1,914 16	10·4
	22,716	1,930 86	.....	.....	.....	.....	.....	.....	.....
Total.....	85,705	8,082 00	9·43	6,447	751 40	11·65	65,646	7,126 00	12·38

Goods stored for others:—

Quantity on hand first day of the month	29,882
Quantity received during the month	4,870
Quantity sold during the month	19,459

STATEMENT OF COLD STORAGE FOR CANADA.

COD-HADDOCK, APRIL, 1917.

	Quantity on Hand First Day of the Month.			Quantity Purchased During the Month.			Quantity Sold During the Month.		
	Lbs	$ cts.	Average Value per lb.	Lbs.	$ cts.	Average Cost Price.	Lbs.	$ cts.	Average Selling Price.
Ontario.....	1,650	115 50	7·00	.....	.....	.....	.....	.....	.....
Toronto.....	4,075	284 90	6·99	5,946	445 80	7·35	9,781	978 10	10·00
Total.....	5,725	400 40	7·00	5,946	445 80	7·35	9·781	978 10	10·00

Special classification for use of a few firms.

Goods stored for others:—

Quantity on hand first day of the month	161,102
Quantity received during the month	140,435
Quantity removed during the month	5,850

This lengthy document is now about concluded. In previous reports, rendered before the appointment of the Fuel and Food Controllers, I have made suggestions as to remedial action. The suggestion in the report concerning the coal situation that action be taken to ensure deliveries by means of enhanced production and improvement of transportation conditions has been met by the appointment of the Fuel Controller, whose attention is being given mainly to those matters. The suggestions made in the sugar report and also in the coal report as to the necessity for the constitution of a board to supervise price-fixing arrangements and that sort of thing is receiving attention. Now that a Food Controller has been appointed and very close co-operation established between that official and this branch of this department, I consider myself relieved from the making of any suggestions as to the amelioration of conditions as I may find and disclose them, deeming that the function of *action* concerning food prices and food conditions, as distinguished from that of *investigation*, is now his to perform, and that any recommendations of mine, even though valueless, or because so, might prove embarrassing. He will be furnished with a copy of this report, and all data secured on the investigation or to be secured will be (as he has requested, and as you as minister have directed) will be at his disposal.

CONCLUSIONS.

1. I find that the operations of cold storage companies generally have been fairly conducted. There has been no illegal combination nor any excessive accumulation on the part of any company.

2. Individual instances of profiteering occurred during the year 1916. These I have already identified. If they had occurred during the present year, since the provision of the Order in Council under which I am acting in the making of these investigations, I would consider it my duty to recommend that the facts be laid before the proper Attorney General for his consideration as to their criminality.

3. A tendency has become apparent during this present year, on the part of a few companies, to exact seemingly excessive margins upon beef and butter. Whether these margins are in fact excessive only a criminal prosecution or a declaration on the part of the Food Controller as to what shall be a fair price or a fair margin can determine.

4. While, since the coming into force of the Order in Council concerning the Cost of Living, the margins of the companies referred to in conclusion No. 2 have not ruled as high as during 1916, they are, in my judgment, yet too high; but I have to make concerning them the same observation as made concerning the companies referred to in conclusion No. 3. Perhaps the mere mention of the matter may lead to a desirable change in conditions.

5. As concerns the business of most other cold storage companies I consider that their profits on certain lines while not high as compared with before-the-war prices, might well be less. Their business has so immensely extended during the war period that the before-the-war margins of profit ought not to be considered now fair tests of fair profits.

6. Any reductions securable by the lessening of the margins of the cold storage companies will go only a short way towards reduction of prices to the consumer. The margin of the cold storage companies, (see the previous tables) is, per pound or per dozen, relatively small; the profits of the cold storage companies are made on their enormous turn-over.

7. The farmer, the cold storage operator, the wholesale produce merchant, the retailer and the consumer, indeed every person who in any manner has come into relation with the commodities covered by this report, including the farm labourer

whose wages have been increased, the carter whose charge has been increased, the miller whose shorts and bran command higher prices, the employees of wholesalers and retailers whose salaries are higher, the consumer who requires delivery under a more expensive system, and who besides is, on his own part as master or employee a link in an independent but connecting chain of causation of high prices in some other commodity the price of which reacts upon the price of the commodities covered by this report, have all contributed with a multitude of unmentioned others to produce such prices as prevail. We cannot have peace prices in the midst of war conditions. As conditions change price levels will change—upwards or downwards. Prices depend upon costs. If certain costs must be paid certain prices must be charged. If the farmer can be enabled to produce cheaply and will sell at a reasonable price to a distributor or distributors who will resell at a fair profit all that is possible to be done will have been done. Eliminate the profit and you eliminate the enterprise. Substitute the state and it too must regard costs and earn sufficient profit to make the enterprise pay its way. Any other course leads towards state bankruptcy.

In connection with conclusion No. 3, I refer to the preceding figures for April, 1917. Replacement costs may have tended towards enhancement of the margin on beef during that month. The farmer or producer was charging more for the product. As respects butter, a western company sold over 200,000 pounds of butter at a margin of ten cents per pound. The selling price, notwithstanding, was but one cent above the average price ruling at the time. An explanation was demanded. It transpired that the butter had been bought at a price very much bélow the market rate. My conclusions concerning this case, based upon the law were as follows: The transactions were isolated. One who buys low, as one to whom an article is gifted, may, so far as the law is concerned, sell at the prevailing rates. A temporary fluctuation of a cent or two in price is common and unavoidable, so that it cannot be said of one who (unless consistently) sells a cent or so in advance of the prevailing price, that he is necessarily an extortioner. So I make no recommendation concerning the case but exhibit it as an example of an opportunity that came to a firm to share with the public a "good thing" but which opportunity the firm overlooked. Its action was not in my judgment illegal, but was it respectable? Likewise as to the more aggravated, because continuous, exaction of excessive profits by another firm, on bacon: aside from the matter of illegality, is this sort of thing to be considered respectable? Mine may be as the voice of one crying in the wilderness, but I have to register in the negative.

I desire to acknowledge that in the conduct of the investigation into cold storage conditions of Canada and in the preparation of this report thereon I have received from Miss B. J. McKenna, M.A., most important and valuable assistance. Miss McKenna is a professional economist of great skill and with a tireless aptitude for work. She has been acting as my chief assistant and as directress of the staff of the Cost of Living Branch of this department. If this report should be deemed to be of value, the major portion of any credit should go to her.

WILLIAM F. O'CONNOR,
Acting Commissioner,
re Cost of Living.

RETURN

[222]

TO AN ORDER OF THE HOUSE OF COMMONS, dated the 13th June, 1917, showing:—

1. The total expenditure connected with Agriculture by the Federal Government in each of the fiscal years from 1904-05 to 1916-17, inclusive.

2. How much money was set apart by the Agricultural Aid Act of 1912 to assist the Provincial Departments of Agriculture to improve and extend their work.

3. How much of above amount was given to each province, and what was accomplished in each province as a result of such assistance.

4. How much money was set apart by the Federal Government under the Agricultural Instructions Act of 1913, and under the provisions of the said Act what amounts were respectively allotted each year to the several provinces.

5. What the general purpose of said Act is, and to what extent that purpose has been made effective in each province.

ALBERT SEVIGNY,
Acting Secretary of State.

1904-05	$ 837,867 38
1905-06	953,264 71
1906-07	745,696 46
1907-08	1,163,695 40
1908-09	1,463,138 23
1909-10	1,147,755 53
1910-11	1,456,810 10
1911-12	1,760,452 04
1912-13	2,678,927 71
1913-14	3,447,710 17
1914-15	3,900,250 99
1915-16	3,746,079 83
1916-17	3,496,135 18

2. The sum of five hundred thousand dollars ($500,000) was set apart by the Agricultural Aid Act of 1912 to assist the Provincial Departments of Agriculture to extend their work and enlarge the foundation upon which the future federal policy might be worked out.

3. The amount given to each province was as follows:—

Ontario	$175,733 32
Quebec	139,482 40
Saskatchewan	34,296 29
Nova Scotia	34,288 45
Manitoba	31,730 05
British Columbia	27,334 76
Alberta	26,094 95
New Brunswick	24,509 93
Prince Edward Island	6,529 85
	$500,000 00

No special restrictions were placed upon the spending of these moneys beyond the assent of the Minister to the various lines of expenditure as set forth in an agreement approved by Order in Council. By far the greater portion of this $500,000 was desired by the various provinces for educational purposes and was so expended.

Under agreement with the Province of Ontario the grant was expended on the following objects, viz.:

Field Husbandry Building, Ontario Agricultural College, District Representatives, Poultry and Fruit Work, Drainage, Dairy Survey, Milking Shorthorns, Incidentals, Ontario Veterinary College, Additional Land, Agricultural Exhibition Buildings, Short Courses, Live Stock, Northern Ontario, Women's Institutes, Creamery Work, Soil Survey, Agriculture in Public Schools.

On March 31, 1916, a balance of $20,130.68 remained on hand.

Under agreement with the Province of Quebec, the grant was expended on the following objects, viz.:—

Fruit Culture, Bacon Industry, Poultry Keeping, Agricultural Colleges, Experimental Union, Live Stock Importations, Clover and Alfalfa Demonstrations, Underdrainage, Chemical Laboratories, Dairying, Provincial Dairy Association, Tobacco Demonstrations, Veterinary Instruction Laboratory, Demonstration Trains and Lectures.

Under agreement with the Province of Nova Scotia the grant was used to assist agricultural societies and to provide funds for the building of an extension to the Agricultural College.

Under agreement with the Province of New Brunswick, the grant was expended on the following objects, viz.:—

Horticulture, Insect Pests, Stock and Seed Judging, Women's Institutes, Seed Selection, Agricultural Students, Dairying, Rural Schools, Poultry, Incidentals.

Under agreement with the Province of Prince Edward Island, the grant was expended for the following purposes, viz.:—

Agricultural Buildings, Short Courses in Agriculture, Live Stock Judging Classes, Professor of Animal Husbandry, Demonstrations in Horticulture.

Under agreement with the Province of Manitoba, the grant was expended for the following purposes, viz.:—

Demonstration Farms, Demonstration Trains, Agricultural Meetings, Lectures, Ploughing Matches, Poultry Industry, Grants to Agricultural Societies.

The unexpended balance on January 9, 1917, was $2,901.33.

Under agreement with the Province of Saskatchewan, the grant was expended for the following purposes, viz.:—

College of Agriculture, Weed Control, Dairying, Poultry, Live Stock, Winter Fair Board, Cattle, Sheep and Swine Breeders' Associations.

Under agreement with the Province of Alberta, the grant was expended for the following purposes, viz.:—

Dairy Shorthorns, Women's Institutes and Domestic Science, Demonstration Train, Excursions to Experimental Farms, Stock for Poultry Stations, Dry Farming Congress, Incidentals.

Under agreement with the Province of British Columbia, the grant was expended for the following purposes, viz.:—

Women's Institutes, Fruit Packing Schools, Purchase of Dairy Cattle, Introduction of Live Stock, Incidentals.

Balance on hand, March 31, 1916, $606.69.

Under the Agricultural Instruction Act of 1913, the sum of ten million dollars was set apart to be available during the ten years ending March 21, 1923.

Following are the allotments during the four-year period, 1913-17:—

	1913-14.	1914-15.
Prince Edward Island	$ 26,529 85	$ 27,832 81
Nova Scotia	54,288 45	61,144 45
New Brunswick	44,509 93	49,407 20
Quebec	159,482 40	187,409 16
Ontario	195,733 32	230,868 83
Manitoba	51,730 05	58,075 45
Saskatchewan	54,296 29	61,152 31
Alberta	46,094 95	51,310 41
British Columbia	47,334 76	52,799 38
Veterinary Colleges	20,000 00	20,000 00
	$700,000 00	$800,000 00

	1915-16.	1916-17.
Prince Edward Island	$ 29,138 28	$ 30,443 75
Nova Scotia	68,001 87	74,859 28
New Brunswick	54,308,40	59,209 60
Quebec	215,310 70	243,212 23
Ontario	266,013 64	301,158 45
Manitoba	64,421 31	70,767 21
Saskatchewan	68,011 04	74,869 76
Alberta	56,528 82	61,747 22
British Columbia	58,265 94	63,732 50
Veterinary Colleges	20,000 00	20,000 00
	$900,000 00	$1,000,000 00

5. The general purpose of the Act is stated in section 3 to be the "aiding and advancing of the farming industry by instruction in agriculture."

The extent to which the purpose of the Act has been made effective in each province is indicated by the following summary of the work performed:—

ONTARIO.

For District Representatives	$414,000 00
For Building Equipment, Ontario Agricultural College	264,913 64
For Additions to College staff	26,400 00
For Educational propaganda in connection with the co-operative marketing of farm products, and for demonstrations in vegetable growing	29,500 00
For Demonstration trains, Institute short courses and lectures in Live Stock judging and seed selection, Courses for Fall Fair judges, Short Courses for winners of Acre Profit and Live Stock competitions	39,440 00
For demonstration and instruction in connection with fruit-growing	24,000 00
For instruction in Bee-keeping, poultry-keeping and dairying	15,518 45
For Drainage and Soil Demonstrations	38,900 00
For special short courses for women in household science under the auspices of the Women's Institutes	16,000 00
For incidental expenditures	6,102 15
For Elementary Agricultural Education	69,000 00
For proposed Agricultural School at Kemptville	50,000 00
	$993,774 24

QUEBEC.

For Assistance to Schools and Colleges of Agriculture		$244,850 00
For Demonstration and Instruction—		
Fruit-Growing	$101,919 24	
Bacon industry	43,000 00	
Poultry industry	63,000 00	
District Representatives	59,000 00	
Clover and Alfalfa demonstrations	15,039 32	
Seed selection and Field Crop demonstrations	14,190 54	
Dairying	74,000 00	
Bee-keeping	31,000 00	
Underdrainage demonstrations and drainage surveys	27,000 00	
Tobacco industry	15,000 00	
Experimental Union	8,000 00	
Short Courses, lectures, Better-farming Train, etc.	30,914 49	
		$491,564 49

For Agricultural Education in academies, rural and Normal Schools, and for Instruction in Household Science in convent schools	69,000 00
	$805,414 49

NEW BRUNSWICK.

For Agricultural Schools and Dairy Schools-buildings, equipment and maintenance	$ 61,451 69
For instructors and directors and for instruction and demonstration in various lines of agriculture and horticulture	88,100 00
For the preparation and printing of bulletins and for incidental expenditures	7,235 13
For the promotion of Women's Institutes and for instruction in women's work	11,500 00
For Elementary Agricultural Education and Household Science teaching	39,148 31
	$207,435 13

NOVA SCOTIA.

To strengthen and maintain the staff and to provide additional teaching equipment at the Maritime Agricultural College at Truro	$ 75,000 00
For Horticultural buildings and for a Science Building	30,500 00
For contributions towards the cost of Agricultural Halls at six points	9,183 11
For District Representatives, Short Courses, underdrainage demonstrations and Surveys co-operative experiments with field crops, demonstrations in orcharding, demonstrations in the use of fertilizers; for instruction in dairying, poultry raising, bee-keeping, injurious insects and plant diseases	90,816 89
For Women's Institutes and Short Courses in Household Science	11,000 00
For Elementary Agricultural Education	36,700 00
For the printing and publication of reports and bulletins and for incidental expenditures	5,094 05
	$258,294 05

PRINCE EDWARD ISLAND.

To provide building accommodation (Agricultural Halls, Charlottetown and Summerside)	$ 12,514 96
For Instructors, Superintendents and District Representatives and for Instruction and Demonstration work, including Short Courses for farmers, short courses in Household Science, demonstrations in under-drainage, sheep-dipping, orcharding, poultry-raising and co-operative wool-marketing	48,981 55
To promote Women's Institutes	10,768 49
For Elementary Agricultural Education	36,653 80
For Incidentals	5,025 89
	$113,944 69

MANITOBA.

For District Representatives, Short Courses in Agriculture, Better-Farming Trains, Automobile Lecture Tours; for instruction and demonstration in connection with underdrainage, poultry-keeping, bee-keeping and the marketing of products; for instruction in dairying among foreign settlers, and other educational work in connection with dairying	$123,500 00
For Home Economics Societies and special courses in Household Science	35,000 00
For Boys' and Girls' Clubs	20,500 00
For the establishment and carrying on of plots to demonstrate crop rotation and alfalfa, and for the establishment and maintenance of the Killarney Farm to demonstrate general agriculture and the culture of hardy fruits	36,800 00
For bulletins and the supervision of publications	19,900 00
For Incidentals relating to the above	9,294 02
	$244,994 02

SASKATCHEWAN.

To enable the College of Agriculture of the University of Saskatchewan to add to its staff and, in addition to teaching and research, to organize and carry on an Extension Service, including the supervision of Homemaker's Clubs	$ 95,748 15
For Educational work in co-operation and marketing, in animal husbandry, field husbandry and dairying, for short courses and demonstration trains, and to provide a post-graduate short course for veterinary surgeons	137,594 41
For the printing and publication of bulletins and for incidentals	11,886 84
For Elementary Agricultural Education	13,100 00
	$258,329 40

ALBERTA.

For the operation and maintenance of three Schools of Agriculture and Household Science	$124,000 00
Towards equipment and buildings	23,700 00
For Demonstration Farms	17,700 00
For Educational work in connection with dairying	21,000 00
For Instructors and District Agents, and for demonstration trains and school fairs	17,500 00
For Women's Institutes	6,500 00
For Printing and Incidentals	5,281 40
	$216,681 40

BRITISH COLUMBIA.

For Instructors and Demonstrators and for various forms of instruction and demonstration	$123,319 00
For Horticultural Work	26,500 00
For Boys' and Girls' Clubs	3,115 00
For Bulletins and Publications	9,681 00
For Women's Institutes	4,681 00
For Incidentals, including certain investigations into farming conditions	8,836 58
For Elementary Agricultural Education and Instruction in Domestic Science	46,000 00
	$222,132 58

VETERINARY COLLEGES.

On account of the great importance of the live stock interests of Canada, it was considered desirable that the institutions giving instruction in Veterinary Science, and authorized to grant degrees, should be maintained in a high state of efficiency.

Under the Agricultural Instruction Act, the sum of twenty thousand dollars is allotted annually to such institutions. Two colleges have participated in the grant, namely, the Ontario Veterinary College, Toronto, and the School of Comparative Medicine and Veterinary Science, Montreal. The apportionment, based on the number of students enrolled who are British subjects, has been as follows:—

	Ontario Veterinary College.	School of Veterinary Science.
1913-14	$15,371 91	$4,628 09
1914-15	15,607 85	4,392 15
1915-16	14,869 56	5,130 44
1916-17	14,285 72	5,714 28

Two payment have been made to the Ontario Veterinary College namely, those of 1913-14 and 1914-15. On the 25th day of November, 1916, the grant of 1913-14 had been expended. It had contributed to the salaries of additional instructors, and to equipment and maintenance.

To the School of Veterinary Science, four payments have been made, covering the period 1913-17. The moneys provided have contributed to the cost of a new building and to salaries, equipment and maintenance.

FINANCIAL STATEMENTS

RESPECTING

Canadian Northern Railway System

AND

GRAND TRUNK PACIFIC RAILWAY

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
J. de LABROQUERIE TACHÉ
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1917

CANADIAN NORTHERN RAILWAY SYSTEM.

CONDENSED GENERAL BALANCE SHEET, 30TH JUNE, 1916.

ASSETS.

Property Investment—Railway and Equipment at Cost to the System, including discount on Securities of Constituent and Subsidiary Companies and Acquired Securities per Statement on Pages 18 and 19		$494,112,489 34
Other Investments		1,123,393 55
National Trust Company Certificates— *Re* Land Grant Bonds, Issue 1899. These Securities held as collateral to Loans		1,657,500 00
Terminal and Other Properties		5,922,945 63
Land Assets—		
Deferred Payments and Accrued Interest on Sales	$ 7,140,996 59	
Cash with National Trust Company, Account of Land Sales	2,408,683 57	
Lands Unsold	19,855,485 00	
		29,405,165 16
Current Assets—		
Cash held on account of—		
Dominion Government	$ 4,471,611 12	
Province of Manitoba	239,350 64	
Province of Saskatchewan	1,297,306 30	
Province of Alberta	3,104,966 24	
Province of Ontario	407,487 43	
Province of British Columbia	6,403,989 06	
National Trust Company	2,279,841 72	
British Empire Trust Company Trustees Account	2,446,383 97	
Sinking Funds	248,750 66	
	$20,899,687 14	
Value of Material and Supplies on hand	3,368,924 82	
Due from Agents, Station Balances, etc	1,446,010 67	
Miscellaneous Accounts Receivable	6,050,258 16	
British Admiralty	1,226,170 85	
Cash on Hand	2,354,788 45	
		35,345,840 09

LIABILITIES.

Capital Stock—Common			$100,000,000 00
Capital Stock—Affiliated Companies	$ 75,429,500 00		
Less Held in Treasury	69,557,400 00		
		5,872,100 00	
Five Per Cent Income Charge Convertible Debenture Stock			25,000,000 00
Funded Debt—			
Canadian Northern Railway—Schedule "A"	$162,192,440 38		
Affiliated Companies —Schedule "B"	123,223,824 19		
		285,416,264 57	
Equipment Trust Obligations		16,862,500 00	
Temporary Loans against deposit as collateral of inter alia Government Guaranteed Securities, the value of which at current prices exceeds the amount borrowed		55,912,961 80	
Due to Other Companies on Construction Account (Secured)		16,666,957 26	
Current Liabilities—			
Payrolls	$ 1,832,708 23		
Audited Vouchers and Other Floating Liabilities	11,161,443 88		
		12,994,152 11	
Coupon and Dividend Warrants Due on 1st July (Since Paid)	$ 2,166,597 75		
Accrued Interest on Bonds, Loans and Equipment Securities—			
Operating	$1,509,670 50		
Construction	903,002 80		
	2,412,673 30		
		4,579,271 05	
Reserves—			
Steamship Replacement Fund	3,289,543 92		
Equipment Replacement Fund	1,212,727 44		
Insurance Account	616,847 53		
Taxes Accrued	250,000 00		
		5,369,118 89	

CANADIAN NORTHERN RAILWAY SYSTEM.

CONDENSED GENERAL BALANCE SHEET, 30TH JUNE, 1916—*Concluded.*

Insurance Paid in Advance	$ 682,906 11	Affiliated Companies, Advances Account	$ 10,250,506 37
Advances by the Canadian Northern Railway Company to Affiliated Companies	10,250,506 37	Surplus—	
		Land Account $ $37,046,748 17	
Deferred Charges—Unadjusted Debits—Balance	246,545 00	Railway Account 2,776,711 03	
			39,823,459 20
	$578,747,291 25		$578,747,291 25

Auditors' Certificate.

We have examined the books and records of the Canadian Northern Railway System for the year ending 30th June, 1916, and we certify that, in our opinion, the above Balance Sheet is properly drawn up so as to show a true and correct view of the affairs of the System at that date and that the attached Income and Profit and Loss Account Statements are correct.

WEBB, READ, HEGAN, CALLINGHAM & COMPANY,
Chartered Accountants.

Note.—With respect to Cash in Trust Accounts $18,204,552.51 is held for payment to the Company from time to time against expenditures for specific construction works.

SESSIONAL PAPER No. 237

CANADIAN NORTHERN RAILWAY SYSTEM.

STATEMENT of Securities Outstanding, showing: Securities guaranteed by Dominion Government, Securities guaranteed by Provincial Governments, Securities Unguaranteed, Maturities of all Issues, Annual Fixed Charges, June 30, 1917.

Security.	Date of Maturity.	Total Issue.	Annual Interest.
Guaranteed by Dominion Government.		$ cts.	$ cts.
Canadian Northern Railway—			
3% 1st Mtge. Debenture Stock	July 10, 1953	9,359,996 72	280,799 86
3½% 1st Mtge. Debenture Stock	July 20, 1958	7,896,588 26	276,380 47
4% 1st Mtge. Debenture Stock	Sept. 1, 1934	44,866,667 33	1,794,666 66
Canadian Northern Alberta Railway—			
3½% 1st Mtge. Debenture Stock	April 1, 1962	3,569,996 86	124,949 88
3½% 1st Mtge. Debenture Stock	May 4, 1960	3,149,998 66	110,249 96
Canadian Northern Ontario Railway—			
3½% 1st Mtge. Debenture Stock	May 19, 1961	35,770,000 00	1,251,950 00
Total Dominion		104,613,247 83	3,838,996 83
Guaranteed by Province of Ontario.			
Canadian Northern Ontario Railway—			
3½% 1st Mtge. Deb. Stock (1938)	June 30, 1938	6,724,015 39	235,340 54
3½% 1st Mtge. Deb. Stock (1936)	July 10, 1936	1,135,982 20	39,759 38
		7,859,997 59	275,099 92
Guaranteed by Manitoba Government.			
Canadian Northern Railway—			
4% Consolidated Debenture Bonds	June 30, 1930	10,784,046 66	431,361 87
4% Ontario Division Bonds	June 30, 1930	5,580,606 66	223,224 26
4½% Ontario Division Bonds	June 30, 1930	164,980 00	7,424 26
4% Winnipeg Terminal Bonds	July 1, 1939	3,000,000 00	120,000 00
4% 1st Mtge. Stock	June 30, 1930	4,319,998 86	172,799 90
4½% Can. Nor. Manitoba		160,680 00	7,230 60
4% Branch Line Bonds	Feb. 1, 1929	1,137,340 00	45,493 60
4% Gilbert Plains Bonds	Nov. 1, 1930	2,433 33	97 33
4% Manitoba & S.E. Ry. Bonds	Feb. 1, 1929	512,460 00	20,498 40
		25,662,545 51	1,028,130 22
Guaranteed by Saskatchewan Government.			
Canadian Northern Railway—			
4% 1st Mtge. Stock	Jan. 23, 1939	13,709,399 99	548,385 98
Canadian Northern Saskatchewan Railway—			
4½% 1st Mtge. Stock	Dec. 19, 1943	1,174,813 33	52,866 60
		14,884,213 32	601,252 58
Guaranteed by Alberta Government.			
Canadian Northern Railway—			
4% 1st Mtge. Debenture Stock	Feb. 25, 1939	9,726,364 26	389,054 56
Canadian Northwestern Railway—			
4½% 1st Mtge. Debenture Stock	Feb. 16, 1942	6,424,000 00	289,080 00
4½% 1st Mtge. Debenture Stock	Oct. 22, 1943	2,799,997 73	125,999 90
		18,950,361 99	804,134 46

STATEMENT of Securities Outstanding, etc.—*Continued.*

Security.	Date of Maturity.	Total Issue.	Annual Interest.
Guaranteed by British Columbia Government.		$ cts.	$ cts.
Canadian Northern Pacific Railway—			
4 % 1st Mtge. Debenture Stock	Apr. 2, 1950	20,999,997 59	839,999 90
4½% Terminal Debenture Stock	Apr. 2, 1950	8,614,000 00	387,630 00
4½% Branch Line Stock	Apr. 2, 1950	5,543,527 54	249,458 74
4½% Second Charge Stock	Apr. 2, 1950	4,999,998 73	224,999 94
		40,157,523 86	1,702,088 58
Total Provincial		107,514,642 27	4,410,705 76
Unguaranteed Securities.			
Canadian Northern Railway—			
4% Perp. Consol. Debenture Stock	Perpetual	61,837,788 96	2,473,511 55
4% 1st Mtge. Pas Mission Bonds	Apr. 12, 1939	880,000 00	35,200 00
4½% 1st Mtge. Gunflint Bonds	June 30, 1930	669,000 00	30,105 00
4½% Prince Albert Branch Bonds	June 30, 1930	693,900 00	31,225 50
Canadian Northern Ontario Railway—			
4% Perp. Consol. Debenture Stock	Perpetual	12,658,910 51	506,356 42
Central Ontario Railway—			
5% 1st Mtge. Bonds	Jan. 1, 1934	945,593 33	47,279 66
Bay of Quinte Railway—			
*5% 1st Mtge. Bonds	Jan. 2, 1927	780,000 00	39,000 00
Irondale, Bancroft & Ottawa Railway—			
5% Mtge. Bonds	Jan. 1, 1953		
Canadian Northern Quebec Railway—			
4% Perpetual Debenture Stock	Perpetual	5,435,127 39	217,405 09
Great Nor. Ry. of Canada 4% Bonds	Oct. 1, 1934	3,505,750 00	140,230 00
Quebec & Lake St. John Railway—			
4% 1st Mtge. Debenture Stock	Perpetual	4,486,813 60	179,472 54
Duluth, Winnipeg & Pacific Railway—			
4% 1st Mtge. Stock	June 1, 1939	8,221,907 27	328,876 28
Duluth, R.L. & Wpg. Ry. 5% Bonds	Jan. 1, 1921	2,000,000 00	100,000 00
Halifax & Southwestern Railway—			
3½% 1st Mtge. Bonds	Sept. 30, 1943	5,663,666 66	198,228 32
Niagara, St. Catharines & Toronto Railway—			
5% 1st Mtge. Bonds	Nov. 1, 1929	1,504,000 00	75,200 00
5% 2nd Mtge. Bonds	Nov. 1, 1929	536,500 00	26,825 00
Qu'Appelle, Long Lake & Saskatchewan Railway & Steamboat Co.—			
4% 1st Mtge. Stock	July 1, 1936	5,019,681 10	200,787 24
Mount Royal Tunnel and Terminal Co., Ltd.—			
5% 1st Mtge. Bonds	April 15, 1970	11,430,033 39	571,501 67
James Bay and Eastern Railway—			
* 5% 1st Mtge. Bonds	Sept. 1, 1945	300,000 00	15,000 00
Minnesota and Manitoba Railway—			
4% 1st Mtge. Bonds	Sept. 1, 1931	349,000 00	13,960 00
		126,917,672 21	5,230,164 27

STATEMENT of Securities Outstanding, etc.—*Concluded.*

Securities.	Date of Maturity.	Total Issue.	Annual Interest.
		$ cts.	$ cts.
Land Securities.			
Canadian Northern Railway—			
4% Land Grant Bonds (1909)	July 1, 1938	1,852,740 00	74,109 60
†4% Land Grant Bonds (1899)	Feb. 1, 1919	2,000,000 00	
*5% Land Mtge. Debentures	June 1, 1923	17,033,333 33	851,666 67
Total Unguaranteed		147,803,745 54	6,155,940 54
Grand Total		359,931,635 64	14,405,643 13

NOTES.—(*) 1—In Treasury.
(†) 2—Interest payable from funds in hands of National Trust Co., Ltd.
3—In addition to above, the following are authorized and issued:—
(*a*) Canadian Northern Railway 5 per cent Income Charge Convertible Debenture Stock, $25,000,000.
(*b*) Imperial Rolling Stock Co., Ltd., Equipment Trusts, $14,846,500.
4—Included in the above are the following securities guaranteed by the Dominion and Provincial Governments, interest on which is payable by respective Governments:—

—	Amount Outstanding.	Interest.
Dominion Guarantee.	$ cts.	$ cts.
C. N. R. 4% Dominion Guarantee Debenture Stock (The Governor in Council may at the request of the Company authorize the Government to pay out of the Consolidated Revenue Fund of the Dominion of Canada all or any portion of the first six half-yearly payments of interest on the Guaranteed Securities falling due after the opening for traffic of the through line of the Canadian Northern Railway System from Vancouver to the City of Quebec. The road was declared to be open for traffic and interest was paid by Government March 1st, 1916.) The Government will pay interest till September 1st, 1918 inclusive.	44,866,667 33	1,794,666 66
C. N. Ontario Ry. 3½% Debenture Stock The Government may at the request of the Company out of the Consolidated Revenue Fund pay all or any portion of the first four half-yearly payments of interest on the Guaranteed Securities falling due after the opening for traffic of the whole of the line so aided. The road was declared to be open for traffic and interest was paid by Government July 20th, 1916 The Government will pay interest till January 20th, 1918 inclusive.	35,770,000 00	1,251,950 00
		3,046,616 66
Guaranteed by Province of British Columbia.		
C. N. Pacific Ry. 4% Guarantee Debenture Stock	20,999,997 59	839,999 90
C. N. Pacific Ry. 4½% Terminal Debenture Stock	8,614,000 00	387,630 00
C. N. Pacific Ry. 4½% Branch Lines Stock	5,339,127 53	240,260 74
Should the earnings of the Company during each or any of the first three years of operating, after completion of the lines included in the Mortgaged Premises, be insufficient to pay the operating expenses and interest on the Guaranteed Securities, the Province shall pay the amount of such deficit of interest to the Company, or such persons, firms, or corporations as may be entitled thereto.		
		4,514,507 30

CANADIAN NORTHERN RAILWAY SYSTEM.

MEMORANDUM *re* Short Term Loans and Current Liabilities, June 15, 1917.

London Loans	$ 21,083,208		
Canada Loans	31,154,066		
New York Loans	21,750,000		
Other Obligations	24,289,609		
		$	98,276,883
London Bank Loans on Securities, as per list		$	21,083,208
Canadian Northern Ry. 4% D. S. (Dom. Guart.) Loan	$ 10,000,000		
Dominion Government Loan	15,000,000		
Special Loans on Securities	6,154,066		
			31,154,066
C.N.R. 6% 1 and 2 Year Notes July 10, 1917, and July 10, 1918	$ 6,000,000		
C.N.R. 4% D. S. (Dom. Guart.) Two Year Notes 1st September, 1917.	11,500,000		
C.N.R. 5% One Year Notes, September 1st, 1917	1,750,000		
C.N.R. 5% One and Two Year Notes due 10th January, 1918 and 10th January, 1919	2,500,000		
			21,750,000
Temporary Loans and Advances covering Interest, Construction, Betterments and Equipment, at 14th June, 1917	$ 21,145,913		
LESS: Receivable from Proceeds of Securities, etc., applicable in reduction of the above certified to by Company's Official	1,260,898		
			19,885,015
Due to Construction Contractors at April 30th, 1917			1,277,323
Balance due on Sundry Accounts:—			
Payrolls, Audited Vouchers, etc	$ 12,994,152		
Coupon Warrants, Accrued Interest, etc	4,579,271		
	17,573,423		
Cash on Hand, Accounts Receivable, Material, Supplies, etc	$ 14,446,152		
			*3,127,271
		$	98,276,883

NOTE: The above does not include payments maturing in respect of Equipment Trust Obligations.

We have examined the above statement and the schedules attached initialed by us, and certify that the loans are correctly stated as shown by the records of the Canadian Northern Railway System.

As no Balance Sheet dated the 15th June, 1917, is as yet completed, we are not in a position to certify that all Temporary Loans are included, but we have followed through any additions and reductions since 30th June, 1916, the date of the last certified Balance Sheet, and we are of the opinion that the aforementioned schedules are substantially correct.

WEBB, READ, HEGAN, CALLINGHAM & CO.,

Chartered Accountants.

*This figure is as of June 30th, 1916, but is approximately the same as of June 15th, 1917.

CANADIAN NORTHERN RAILWAY SYSTEM.

IMPERIAL ROLLING STOCK COMPANY, LIMITED.—Equipment notes Outstanding June 30, 1917; principal payable in year ending June 30, 1918; interest payable in year ending June 30, 1918.

Series.	Principal Outstanding.	Principal Payable.	Interest Payable.
	$ cts.	$ cts.	$ cts.
"P"	100,000 00	100,000 00	2,250 00
"R"	170,000 00	170,000 00	7,650 00
"S"	200,000 00	100,000 00	9,000 00
"T"	450,000 00	150,000 00	16,875 00
"U"	150,000 00	50,000 00	5,625 00
"V"	1,200,000 00	300,000 00	47,250 00
"A-1"	1,476,000 00	368,000 00	62,280 00
"B-1"	675,500 00	150,000 00	28,698 75
"C-1"	1,100,000 00	220,000 00	47,025 00
"D-1"	1,650,000 00	330,000 00	70,537 50
"E-1"	1,155,000 00	210,000 00	49,612 50
"F-1"	2,530,000 00	420,000 00	109,125 00
"G-1"	650,000 00	100,000 00	28,125 00
"H-1"	510,000 00	80,000 00	24,500 00
"K-1"	1,580,000 00	210,000 00	76,375 00
"L-1"	1,250,000 00	132,000 00	60,850 00
	14,846,500 00	3,090,000 00	645,778 75

Total Cost of Equipment Purchased	$ 61,398,386
Equipment Notes Outstanding	14,846,500
Net Expenditure on Equipment	$ 46,551,886

CANADIAN NORTHERN RAILWAY SYSTEM.

Securities Pledged as collateral, June 30, 1917.

Guaranteed Securities.	$ cts.	$ cts.
C.N.R., 4% Gtd. Dom. Govt.	27,833,334 00	
C.N. Alta., 3½% Gtd. Dom. Govt.	3,569,996 86	
C.N. Ont., 3½% Gtd. Dom. Govt.	1,540,003 13	
		32,943,333 99
C.N.Man., 4½% Prov. of Man.	160,680 00	
C.N.R., 4% Prov. of Alta.	1,949,698 60	
C.N.R., 4% Prov. of Sask.	3,246,066 66	
C.N.Pac., 4½% Br. Lines B.C. Govt.	5,543,527 54	
C.N.Pac., 4½% 2nd Charge D.S. B.C. Govt.	4,999,998 73	
C.N.Sask., 4½% Saskatchewan	1,174,813 33	
C.N.Sask., 4½% Saskatchewan (Terminals)	486,666 66	
		17,561,451 52
		50,504,785 51
Unguaranteed Securities.		
C.N.R., 4% P. C. D. S.	12,382,099 44	
C.N.R., 4½% Prince Albert Branch	693,900 00	
C.N.R., 4% Pas Mission	880,000 00	
C.N.O., 4% P. C. D. S.	3,934,797 31	
C.N.Q., 4% D. S.	184,758 13	
D.W. & P.Ry., 4% D. S.	1,216,910 00	
Q &L.St.J., 4% 1st Mtge. Stock	234,310 53	
H.&S.W.Ry., 3½% D. S.	1,216,666 66	
C.N.R., 4½% Gunflint Branch	669,000 00	
N.St.C.&T.Ry., 5% 1st Mtge. Bonds	406,000 00	
N.St.C.&T.Ry., 5% 2nd Mtge. Bonds	536,500 00	
Mt.Royal T.&T., 5% Rent Charge Bonds	9,191,366 72	
C.N.R., 5% Land Mtge. Debs.	9,933,839 99	
Land Grant, 4% Bonds, 1919.	1,657,500 00	
C.N.R., 5% Income Charge Convertible D.S.	860,392 60	
Q.&L.St.J., 1st Mtge. Bonds	31,268 33	
Q.&L.St.J., Income Bonds	102,818 07	
Jas.Bay & E.Ry., 5% 1st Mtge. Bonds	300,000 00	
Can.Nor.Prairie Lands Co., Ltd. Shares	50,095 00	
Can.Nor.Ry., 6% Mortgage (Dom. Govt.)	15,000,000 00	
		59,482,222 78
Land Grants.		
C.N.O.Ry. Land Grant, 2,000,000 acres	4,536,931 00	
C.N.Que.Ry. Land Grant, 402,000 acres	1,208,580 00	
		5,745,511 00
		115,732,519 29

CANADIAN NORTHERN RAILWAY SYSTEM.

Temporary Loans Outstanding June 15, 1917.

LONDON.

	Security.	Maturity.	Amount.
	£		£ s. d.
1.	178,900 C.N.R. 4% P.C.D.S.		
	73,873 C.N.O. 4% P.C.D.S.		
	176,793 C.N.R. 5% Income Chg. Con. D.S.		
	68,200 C.N.R. 5% Land Mtge. Debs.	Sept. 30, 1917	191,000 0 0
	21,886 Que. & L. St. John Ry. 4% D.S.		
	1,300 D. W. & P. Ry. 4% D.S.		
	Shares 10,019 C.N. Prairie Lands Co., Ltd., Ordinary Shares		
2.	£ 175,000 C.N.R. 4% P.C.D.S.		
	200,000 C.N.R. 4% Alta. D.S.	Oct. 5, 1917	200,000 0 0
3.	406,000 C.N.P.R. 4½% Br. Lines D.S.	July 9, 1917	302,500 0 0
4.	58,581 C.N.P.R. 4½% Br. Lines D.S.	Oct. 15, 1917	46,864 16 0
5.	1,027,397 C.N.P.R. 4½% 2nd Chge. D.S.	Oct. 15, 1917	821,917 12 0
6.	790,000 Mt.R.T. & T. Co. 5% Bonds	Oct. 15, 1917	599,800 0 0
7.	70,000 C.N.R. 4% Alta. D.S.		
	130,000 C.N.R. 4% P.C.D.S.	Dec. 9, 1917	100,000 0 0
8.	316,438 C.N.R. 4% P.C.D.S.	Demand	258,900 0 0
9.	65,000 C.N.R. 4% P.C.D.S.	Demand	51,183 13 4
10.	1,651,805 C.N.R. 5% Land Mtge. Debs.		
	44,495 C.N.R. 4% D.S. P. of Alta	Demand	1,460,000 0 0
	51,590 C.N.R. 4% P.C.D.S.		
11.	400,000 C.N.R. 4% P.C.D.S.		300,000 0 0
	5,907,258 \$28,798,750 60. Currency \$21,083,208 17		4,332,166 1 4
	Shares 10,019		

Note.—In converting par rate of exchange used.

CANADA.

1.	£ 37,964 C.N.Q.R. 4% D.S.	Demand	$168,418 23
2.	£ 86,128 C.N.R. 4% D.S. Prov. of Alta	"	356,282 87
3.	£ 129,000 C.N.O.R. 4% D.S.	"	489,684 00
4.	$ 63,000 C.N.R. 4½% Bonds Prince Albert Br.	"	50,400 00
5.	$ 380,000 C.N.R. 4% Pas Mission Bonds	"	285,000 00
6.	£ 69,600 C.N.R. 4% P.C.D.S.	"	270,976 00
7.	£ 37,000 D. W. & P.R. 4% D.S.	"	120,645 00
8.	£ 146,875 D.W. & P.R. 4% D.S.	"	478,910 40
9.	£ 85,859 C.N.O.R. 4% D.S.	"	292,492 98
10.	$ 1,657,500 Nat. Trust Co. 4% Transferable Cert. re C.N.R. 4% Land Grant Bonds	"	1,505,154 64
11.	£ 26,260 Q. & L.S.J.R. 4% Mtge. D.S.	"	83,069 00
12.	£ 300,000 C.N.R. 4% P.C.D.S.	"	776,004 30
13.	$ 356,000 N.S.C. & T.R. 5% Mtge. Bonds	"	290,000 00
14.	£ 32,205 D. W. & P. R. 4% D.S.	"	105,000 00
15.	£ 180,062 C.N.O.R. 4% P.C.D.S.	"	617,028 87
16.	£ 32,670 D.W. & P.R. 4% D.S.		
	$ 25,000 N.S.C. & T.R. 5% 1st Mtge. Bonds	"	115,000 00
17.	$ 175,900 C.N.R. 4½% Bds. Prince Albert Br.		
	$ 24,100 C.N.R. 4½% Bds. Gunflint Branch	"	150,000 00
	£ 10,000 C.N.R. 4% P.C.D.S.		
	$ 8,393,131		$ 6,154,066 29
18.	12,500,000 C.N.R. 4% Dom. Government D.S.	"	10,000,000 00
	$ 20,893,131		$ 16,154,066 29
19.	Mortgage dated June 23rd, 1916	"	15,000,000 00
			$ 31,154,066 29

Note.—In converting par rate of exchange used.

CANADIAN NORTHERN RAILWAY SYSTEM.

New York Loans Outstanding June 15, 1917.

	Security.	Maturity.	Amount.
1. C.N.R. 6% 1 and 2 Year Notes	$ 1,270,200 00 1,253,166 67 1,174,813 33	C.N.R. 4% Sask ... Jan. 10/18 C.N.P.R. 4½% Br. Lines $ 1,250,000 C.N.S.R. 4½% D.S.... Jan. 10/19 $ 1,250,000	$2,500,000
2. C.N.R. 5% 1 Year Notes	2,501,466 66	M.R.T. & T. Co. 1st Mtge. (C.N.) Rent Charge Bonds.....Sept. 1/17	1,750,000
3. C.N.R. 6% 1 and 2 Year Notes	3,569,996 87 1,540,003 13 1,975,866 67 2,029,400 00	C.N.A.R. 3½% Dom.Gtd. July 10/17 C.N.O.R. 3½% Dom.Gtd. $ 3,000,000 C.N.R. 4% Sask .....July 10/18 C.N.P.R. 4½% Br. Lines. $ 3,000,000	6,000,000
4. C.N.R. 5% 2 Year Notes	$15,333,334 00	C.N.R. 4% Gtd. Dom. Sept. 1/71	11,500,000
	$30,648,247 33		$ 21,750,000

Note.—In converting par rate of exchange used.

CANADIAN NORTHERN RAILWAY SYSTEM.

Statement of Gross Earnings, Operating Expenses and net Earnings for 12 Months ending June 30, 1917, net Earnings Estimated for Month of June.

Month.	Gross Earnings.	Operating Expenses.	Net Earnings.
1916			
July	$ 3,834,191 68	$ 2,636,812 11	$ 1,197,379 57
August	3,684,910 12	2,612,916 97	1,071,993 15
September	3,187,894 09	2,455,253 59	732,640 50
October	3,716,784 77	2,496,512 78	1,220,271 99
November	3,722,305 84	2,472,318 00	1,249,987 84
December	3,485,365 10	2,661,578 35	823,786 75
1917			
January	2,832,592 48	2,350,481 57	482,110 91
February	2,358,607 02	2,250,398 32	108,208 70
March	3,273,235 56	2,655,160 39	618,075 17
April	3,315,500 00	2,557,600 00	757,900 00
May	3,784,700 00	2,730,300 00	1,054,400 00
June	4,048,600 00	2,915,000 00	1,133,600 00
Miscellaneous Earnings From Subsidiary Companies including Interest on Investments, etc.	1,075,000 00	.....	1,075,000 00
	$ 42,319,686 66	$ 30,794,332 08	$ 11,525,354 58

CANADIAN NORTHERN RAILWAY SYSTEM.

Comparison of Earnings, 1915, 1916, and 1917.

	Gross Earnings.	Operating Expenses.	Net Earnings.
1915	$ 25,912,106 30	$ 19,288,814 42	$ 6,623,291 88
1916	35,476,275 06	26,102,744 52	9,373,530 54
1917	42,319,686 66	30,794,332 08	11,525,354 58

CANADIAN NORTHERN RAILWAY SYSTEM.

STATEMENT of Expenditures on Capital Account for Equipment, Construction and Betterments from July 1, 1916, to June 30, 1917.

Principal of Equipment Notes Retired	$ 3,266,000 00
Expenditure on Construction, New Rolling Stock and other Capital work	4,287,270 35
Expenditure on Betterments, Improvements and Traffic Facilities	2,021,999 08
	$ 9,575,269 43

CANADIAN NORTHERN RAILWAY SYSTEM.

MILEAGE, 30th June, 1917.

Province.	Main Line.	Branches.	Total.
Nova Scotia		370	370
Quebec	206	479	685
Ontario	1,248	974	2,222
Minnesota	44	171	215
Manitoba	364	1,631	1,995
Saskatchewan	400	1,820	2,220
Alberta	436	830	1,266
British Columbia	513	27	540
Total, miles	3,211	6,302	9,513

GRAND TRUNK PACIFIC RAILWAY COMPANY AND GRAND TRUNK PACIFIC BRANCH LINES COMPANY.

Estimated Cash Requirements for period July 1, 1917, to June 30, 1918.

——	Date of Maturity.	Principal Amount.	July.	Sept.	Oct.	Nov.	Jan.	March.	April.	May.	Total.	Guaranteed by
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
Lake Superior Branch—												
4% First Mortgage	April 1/55	7,533,000 00			150,660 00				150,660 00		301,320 00	Grand Trunk Railway.
Prairie—												
3% First Mortgage	Jan. 1/62	12,869,280 00	193,039 20				193,039 20				386,078 40	Dominion Government.
4% Series "A"	April 1/55	10,206,000 00			204,120 00				204,120 00		408,240 00	Grand Trunk Railway.
4% Bonds due 1919	April 1/19	10,000,000 00			200,000 00				200,000 00		400,000 00	"
4% Debentures	July 1/23	5,692,436 84	113,848 74				113,848 74				227,697 48	"
Mountain—												
3% First Mortgage	Jan. 1/62	55,170,720 00	827,560 80				827,560 80				1,655,121 60	Dominion Government.
4% Series "B"	April 1/55	9,963,000 00			199,260 00				199,260 00		398,520 00	Grand Trunk Railway.
4% Debentures	July 1/23	9,307,563 16	186,151 26				186,151 26				372,302 52	"
4% Sterling Bonds	Jan. 1/62	8,440,848 00	168,816 96				168,816 96				337,633 92	Dominion Government.
Loan from Dom. Govt		6,000,000 00				150,000 00				150,000 00	300,000 00	
4% Debenture Stock	Perpetual.	34,879,252 86		697,585 06				697,585 06			1,395,170 12	Grand Trunk Railway.
5% Secured Notes	Mar. 2/21	9,720,000 00		243,000 00				243,000 00			486,000 00	"
General—												
Dom. Govt. Loan 1916–17		5,892,366 49	157,124 14				176,771 00				333,895 14	
G.T.P. Branch Lines.												
Sask'n Branches, 4% Bonds	Jan. 22/39	11,347,848 00				226,956 96				226,956 96	453,913 92	Province of Sask'n.
Sask'n Termls., 4½% Bonds	Dec. 18/43	1,882,240 00				42,350 40				42,350 40	84,700 80	"
Alberta Branches, 4% Bonds	Feb. 25/39	2,430,000 00				48,600 00				48,600 00	97,200 00	Province of Alberta.
Alberta Coal Branch, 4% Bonds	Feb. 15/42	1,159,596 00				23,191 92				23,191 92	46,383 84	"
		202,494,151 35	1,646,541 10	940,585 06	754,040 00	491,099 28	1,666,187 96	940,585 06	754,040 00	491,099 28	7,684,177 74	

Less—Interest on 3% and 4% Bonds due July 1st, 1917, to be provided for out of Balance of the authorized 1917 $8,000,000 Loan		1,189,416 96
		6,494,760 78
Estimated Operating Loss, Grand Trunk Pacific Coast Steamship Company, Ltd		100,000 00
Estimated for Betterments, including Rolling Stock		2,000,000 00
Total		8,594,760 78
Less Estimated Surplus from Operation, G. T. Pacific Ry. System, including G.T.P. Branch Lines		1,100,000 00
Net required		7,494,760 78

Interest on Mountain Section 3% Bonds, amounting to $1,655,121.60, is payable by the Dominion Government for the period of seven years from January 1st, 1916, without recourse on the Grand Trunk Pacific Railway Company.

Montreal, June 14, 1917.

FRANK SCOTT,
Vice-President and Treasurer.

GRAND TRUNK PACIFIC RAILWAY AND GRAND TRUNK PACIFIC BRANCH LINES.

STATEMENT showing bonds, etc., authorized, issued, and outstanding, and net proceeds therefrom, also interest payable during the period July 1, 1917, to June 30, 1918.

—	Par Value Authorized.	Par Value Issued and Outstanding.	Net Proceeds.	Interest payable during the period July 1, 1917, to June 30, 1918.	
Grand Trunk Pacific Railway.	$ cts.	$ cts.	$ cts.		$ cts.
1st Mortgage 3% Bonds, due January 1, 1962	68,040,000 00	68,040,000 00	68,040,000 00	Due Jan. and July	2,041,200 00
4% Bonds, Series "A," due April 1, 1955	10,206,000 00	10,206,000 00	9,601,926 30	" April and Oct.	408,240 00
4% Bonds, Series "B," due April 1, 1955	9,963,000 00	9,963,000 00	9,016,297 11	" April and Oct.	398,520 00
4% Bonds, Lake Superior, due April 1, 1955	7,533,000 00	7,533,000 00	7,116,692 40	" April and Oct.	301,320 00
4% Debenture Stock, Perpetual	50,000,000 00	34,879,252 86	31,411,985 96	" March and Sept.	1,395,170 12
4% Debentures, due July 1, 1923	15,000,000 00	15,000,000 00	15,000,000 00	" Jan. and July	600,000 00
4% Bonds, due April 1, 1919	10,000,000 00	10,000,000 00	10,000,000 00	" April and Oct.	400,000 00
4% Sterling Bonds, due January 1, 1962	15,940,800 00	8,440,848 00	6,727,249 80	" Jan. and July	337,633 92
Loan from Dominion Government	6,000,000 00	6,000,000 00	6,000,000 00	" May and Nov.	300,000 00
5% Secured Notes, due March 2, 1921	9,720,000 00	9,720,000 00	9,095,512 05	" March and Sept.	486,000 00
Loan from Dominion Government	8,000,000 00	5,892,366 49	5,892,366 49	" Jan. and July	333,895 14
	210,402,800 00	185,674,467 35	177,902,030 11		7,001,979 18
Grand Trunk Pacific Branch Lines.					
Alberta Branches 4% Bonds, due February 25, 1939	3,022,500 00	2,430,000 00	15,397,971 12	Due May and Nov.	97,200 00
Alberta Coal Branch 4% Bonds, due February 15, 1942	1,159,596 00	1,159,596 00		" May and Nov.	46,383 84
Saskatchewan Branches 4% Bonds, due January 22, 1939	11,400,000 00	11,347,848 00		" May and Nov.	453,913 92
Saskatchewan Terminals 4½% Bonds, due December 18, 1943	2,150,000 00	1,882,240 00		" May and Nov.	84,700 80
Saskatchewan Bridges 4½% Bonds, due December 18, 1943	1,300,000 00				
	19,032,096 00	16,819,684 00	15,397,971 12		682,198 56
Total Main Line and Branches	229,434,896 00	202,494,151 35	193,300,001 23		7,684,177 74

NOTE.—An issue of $1,468,440 Saskatchewan 4 per cent Bonds, due January 22, 1939, and $1,882,240 Saskatchewan Terminal Bonds, due December 18, 1943, the immediate issue of which has been approved by the Saskatchewan Government, is included in the above figures.

W. H. ARDLEY,
Comptroller.

Montreal, June 12, 1917.